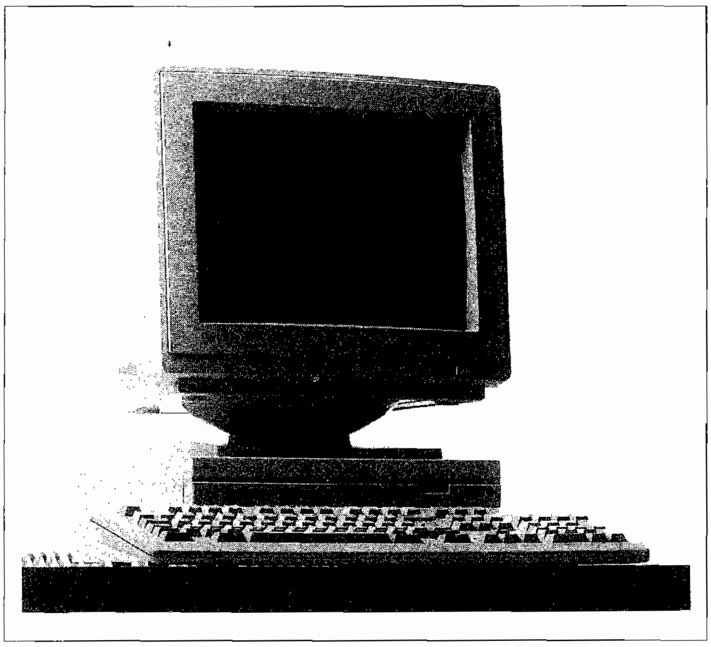
Kundendienst-Handbuch
Service manual

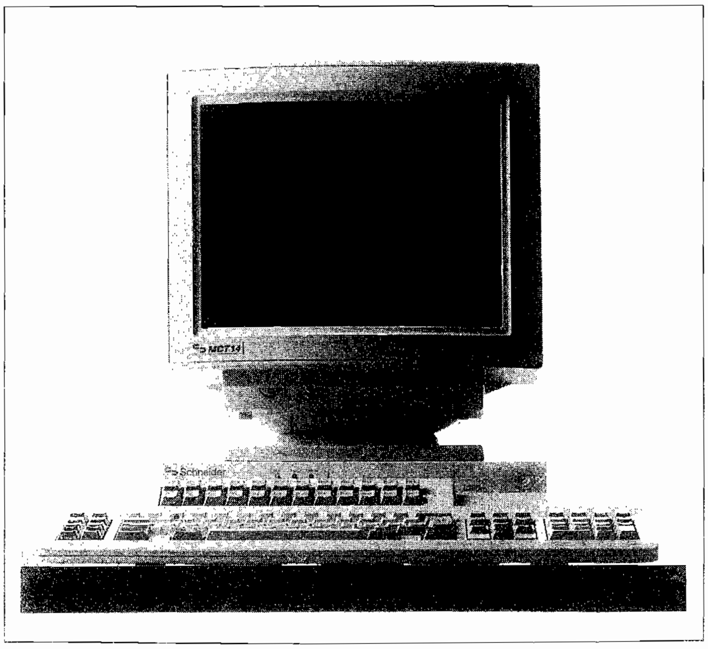
V12324

Schneider

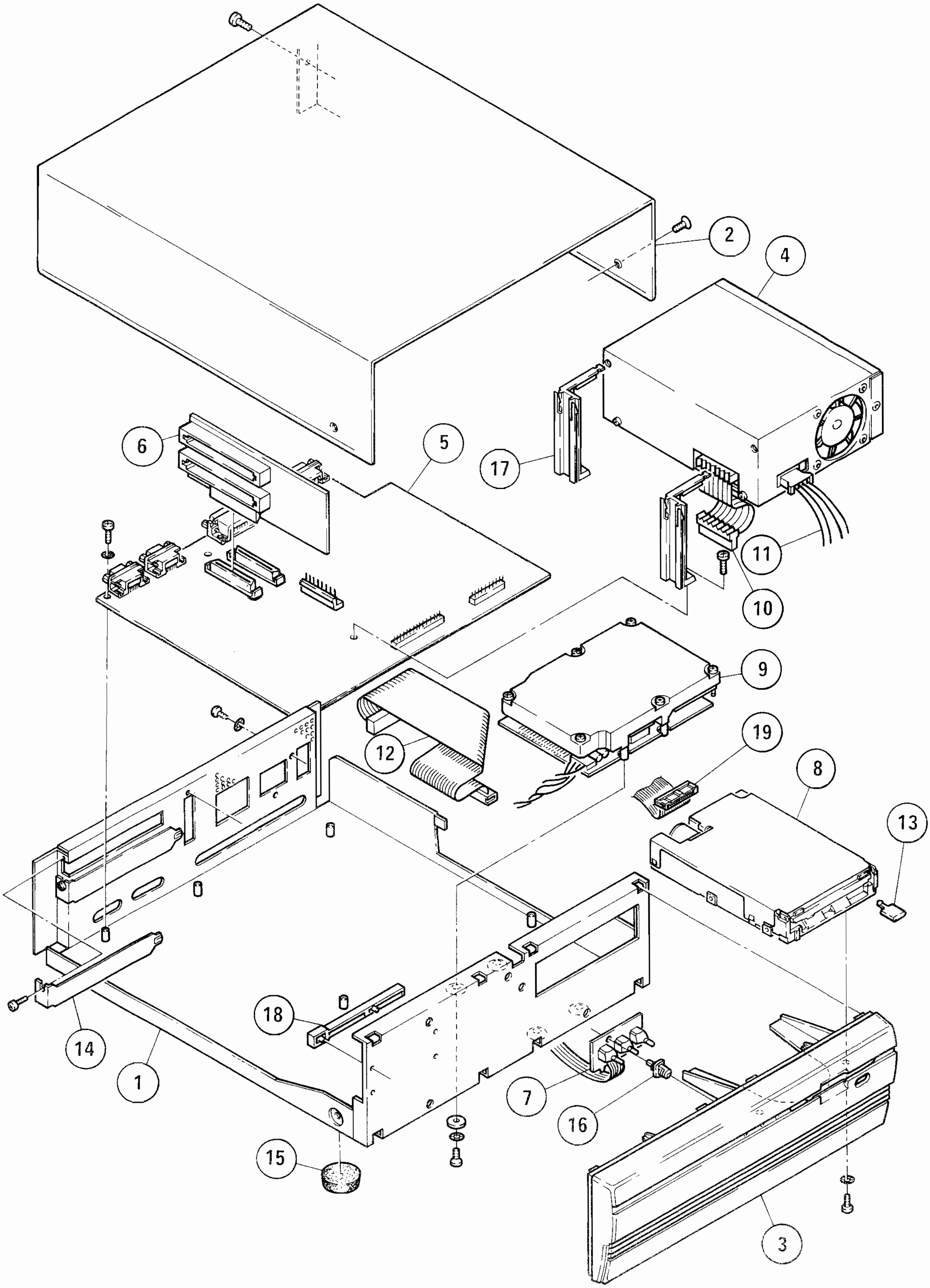
SYSTEMEINHEIT

EURO 386 SX
L 386/16




MCT 14
Schneider

Exploded view


2
4
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17
11
10
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8
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18
14
1
7
16
15
3

Ersatzteilliste für Euro SX 16 MHz/20 MHz
Parts list for Euro SX 16 MHz/20 MHz

Best.-Nr. Part.-No.	Bezeichnung	Description	Zeich.-Pos. Ref.-No.	Preisgruppe Price key
51 451 00	Styropor	Polyfoam		C 1
51 452 00	Faltkarton	Gift box		C 0
51 290 00	Gehäuseunterteil	Cabinet, bottom	1	D 4
52 628 00	Gehäuseoberteil	Cabinet, top	2	D 2
53 142 00	Frontblende	Front, mask	3	C 3
51 467 00	Netzteil Euro	Power supply	4	F 9
53 110 00	Platine CPU 16 MHz	P.C.B. CPU 16 MHz	5	K 2
53 456 00	Platine CPU 20 MHz	P.C.B. CPU 20 MHz	5	K 4
51 620 00	Platine Steckplatz	P.C.B. slot	6	D 8
52 631 00	Platine LED	P.C.B. LED	7	C 2
50 021 00	Floppylaufwerk 1,44 MB	Floppy disk drive 1.44 MB	8	F 9
51 550 00	HD-Laufwerk 40 MB	Hard disk drive 40 MB	9	J 4
53 145 00	Verbindungskabel, Netz-CPU	Cable, connection	10	C 1
51 458 00	Adapterkabel HD 4pol.	Cable, adapter	11	B 4
53 338 00	HD-Kabel	Cable, HDD	12	C 0
50 294 00	Druckknopf für FDD (Sony)	Pushbutton FDD (Sony)	13	A 5
50 020 00	Blindblech	Plate, blind	14	A 6
51 456 00	Gehäusefuß	Leg, cabinet	15	A 4
51 457 00	Platinenhalter	Holder	16	A 3
51 262 00	Führungsschiene Steckplatz	Guide rail, slot	17	A 6
52 612 00	Führungsschiene Steckkarte	Guide rail, socket card	18	A 4
51 443 00	Kabelbaum FDD	Cord, FDD	19	B 6
52 632 00	Druckknopf Reset	Push-button Reset		A 6
52 794 00	Kabelbaum LED	Cord, LED		B 1
65 467 00	IC BIOS-Kit	IC BIOS-Kit		E 9
53 233 00	Tastatur (D)	Keyboard (D)		F 6
53 234 00	Tastatur (CH)	Keyboard (CH)		F 6
53 235 00	Tastatur (DK)	Keyboard (DK)		F 6
53 236 00	Tastatur (E)	Keyboard (E)		F 6
53 237 00	Tastatur (F)	Keyboard (F)		F 6
53 238 00	Tastatur (F) DUAL	Keyboard (F) DUAL		F 6
53 239 00	Tastatur (I)	Keyboard (I)		F 6
53 240 00	Tastatur (N)	Keyboard (N)		F 6
53 241 00	Tastatur (P)	Keyboard (P)		F 6
53 242 00	Tastatur (S/SF)	Keyboard (S/SF)		F 6
53 243 00	Tastatur (GR)	Keyboard (GR)		F 6
53 244 00	Tastatur (GB)	Keyboard (GB)		F 6
53 245 00	Tastatur (SU)	Keyboard (SU)		F 6

Reparaturpauschale/Repair all-inclusive price

53 110 00	Platine CPU 16 MHz	P.C.B. CPU 16 MHz	5	G 7
53 456 00	Platine CPU 20 MHz	P.C.B. CPU 20 MHz	5	G 7

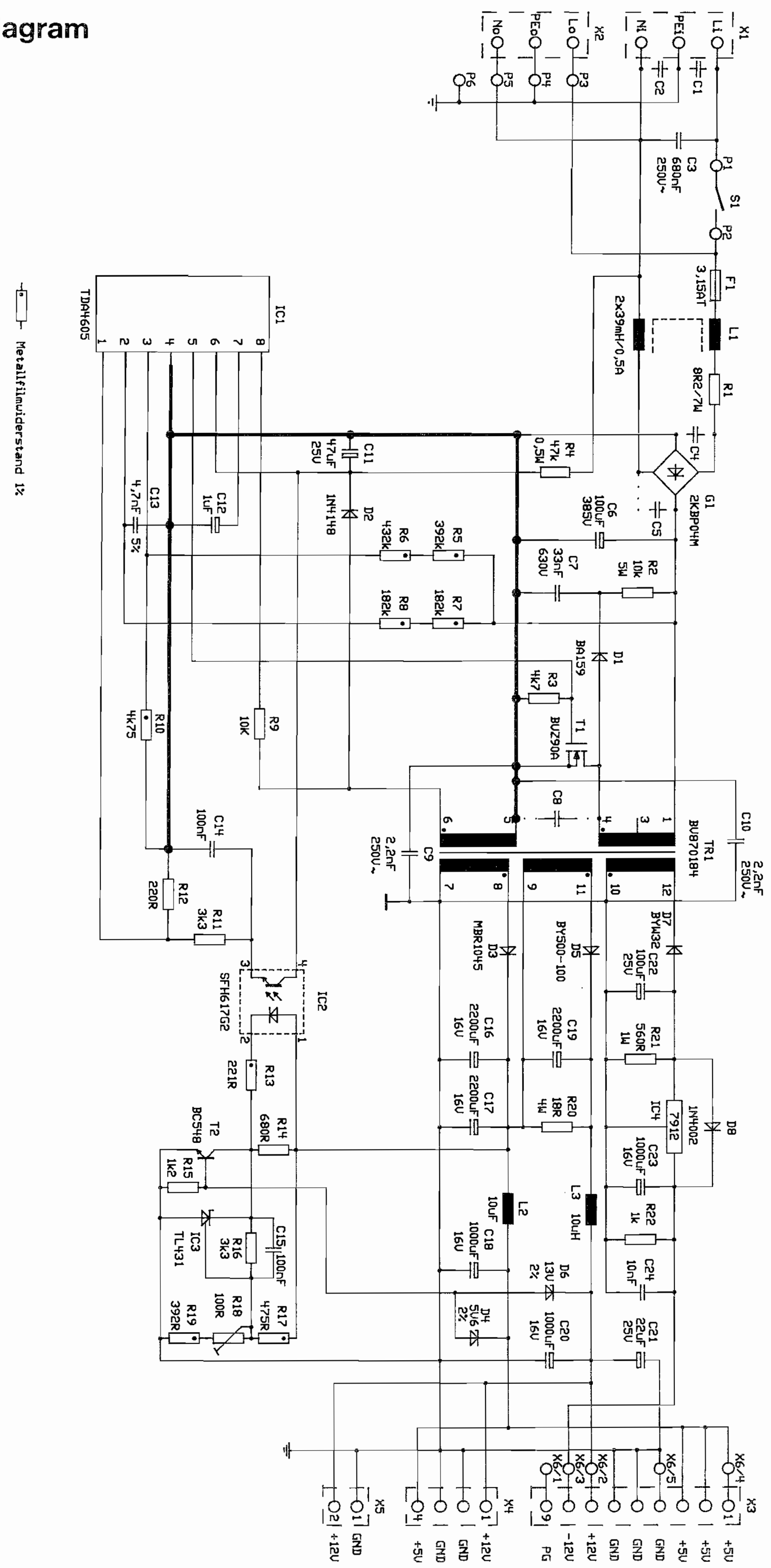
Note: All spare parts with countryindex are reserved for foreign distributors only.

All 3.5″ and 5.25″ floppydisks must be replaced by new ones. Schneider passes no exchange price to the distributor or dealer.

Schematic diagram

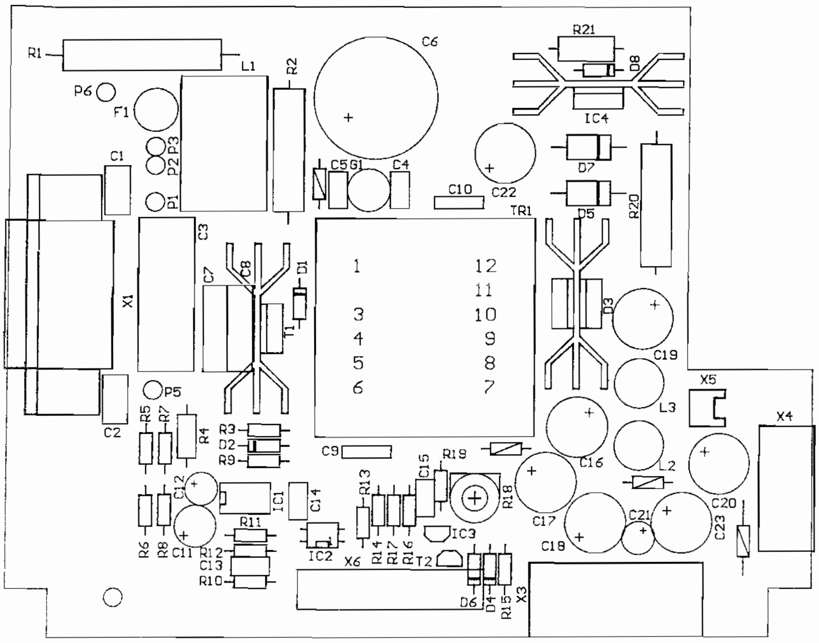
Power supply

EURO 386 SX


X1
Li
PEi
Ni
C1
C2
X2
Lo
PEo
No
P3
P4
P5
P6
C3
680nF
250V~
P1
S1
P2
F1
3,15AT
L1
2x39mH/0,5A
R1
8R2/7W
C4
G1
2KBP04M
C5
C6
100uF
385V
R2
10k
5W
C7
33nF
630V
R4
47k
0,5W
IC1
TDA4605
1
2
3
4
5
6
7
8
C11
47uF
25V
D2
1N4148
C12
1uF
C13
4,7nF
5%
R5
392k
R6
432k
R7
182k
R8
182k
D1
BA159
R3
4k7
T1
BUZ90A
R9
10K
R10
4k75
C8
C10
2,2nF
250V~
C9
2,2nF
250V~
TR1
BV870184
C14
100nF
R12
220R
R11
3k3
IC2
SFH617G2
D7
BYW32
C22
100uF
25V
D5
BY500-100
D3
MBR1045
C16
2200uF
16V
C19
2200uF
16V
R21
560R
1W
C17
2200uF
16V
R20
18R
4W
IC4
7912
D8
1N4002
C23
1000uF
16V
R13
221R
R14
680R
T2
BC548
R15
1k2
L2
10uH
L3
10uH
R22
1k
C24
10nF
C18
1000uF
16V
C15
100nF
R16
3k3
IC3
TL431
D6
13V
2%
D4
5V6
2%
C20
1000uF
16V
C21
22uF
25V
R17
475R
R18
100R
R19
392R
X6/1
X6/3
X6/2
X6/5
X6/4
X3
X4
X5
+5V
+5V
+5V
GND
GND
GND
+12V
-12V
PG
+12V
GND
GND
+5V
GND
+12V
Metallfilmwiderstand 1%

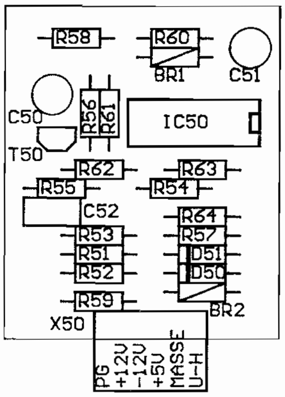
Power supply
Component side
EURO 386 SX

SNT 60300/60301 Schneider
Ident.-Nr.: 810154v2
Groesse: 130*166 mm

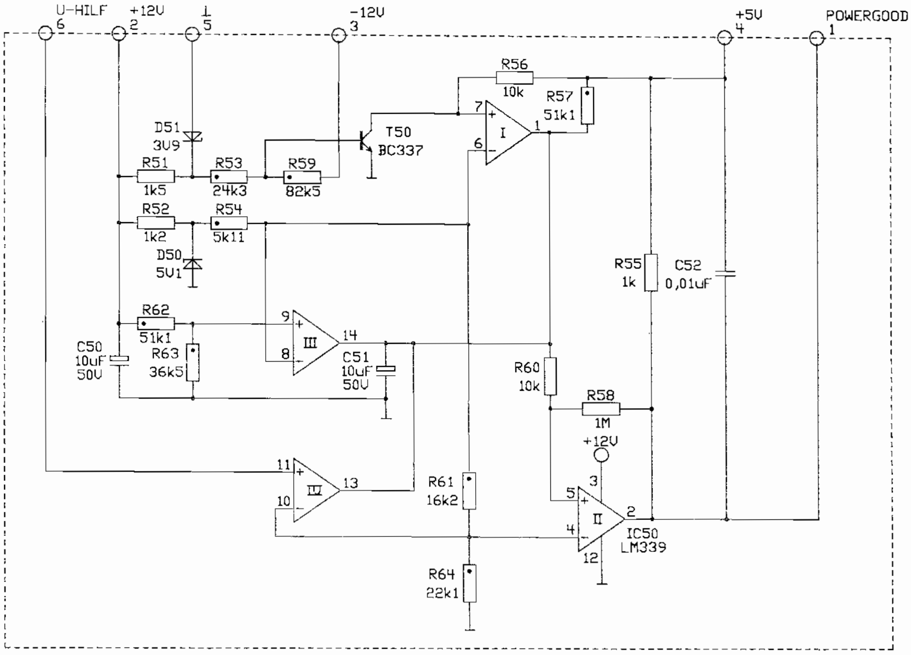

R1
L1
R2
C6
R21
D8
IC4
P6
F1
C1
P2
P3
P1
C5
G1
C4
C10
C22
TR1
D7
D5
R20
X1
C3
C7
C8
D1
T1
1 2 3 4 5 6 7 8 9 10 11 12
D3
C19
X5
L3
X4
C2
P5
R5
R7
R4
R3
D2
R9
C9
C15
R19
R18
C16
L2
R6
R8
C11
C12
R11
IC1
C14
R13
IC3
C17
C21
C20
C23
R12
C13
R10
IC2
X6
R14
R17
R16
T2
C18
D6
D4
R15
X3

Power good module
Component side
EURO 386 SX

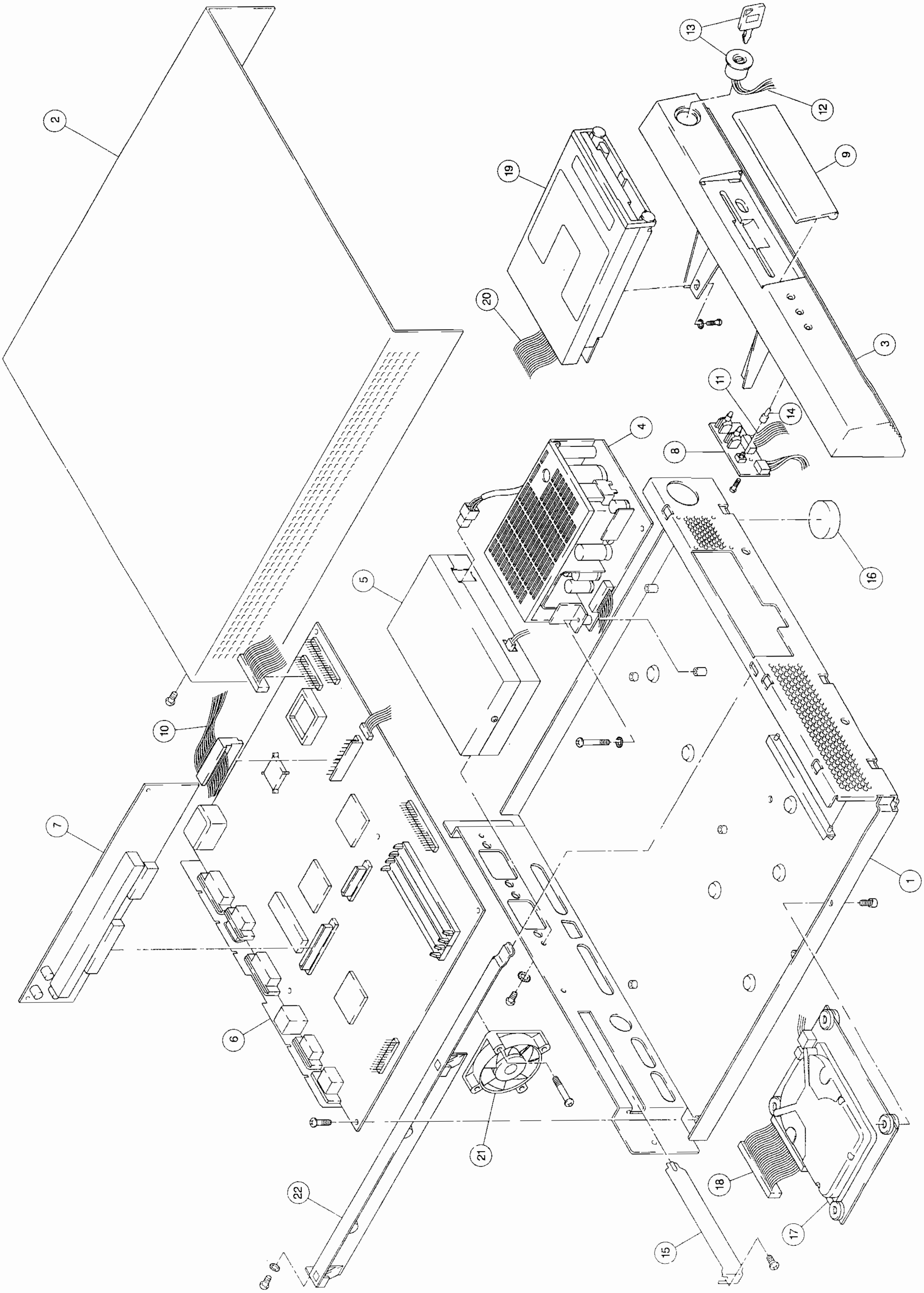
Modul Power-Good fuer SNT 60301/90301
Ident.-Nr.: 810155
Groesse: 38*45 mm


R58
R60
BR1
C51
C50
R56
R61
IC50
T50
R62
R63
R55
R54
C52
R64
R53
R57
R51
D51
R52
D50
R59
BR2
X50
PG
+12V
-12V
+5V
MASSE
U-H

Schematic diagram
Power good module
EURO 386 SX


U-HILF 6
+12V 2
⊥ 5
-12V 3
+5V 4
POWERGOOD 1
R56 10k
R57 51k1
D51 3V9
T50 BC337
R51 1k5
R53 24k3
R59 82k5
R52 1k2
R54 5k11
D50 5V1
R55 1k
C52 0,01uF
R62 51k1
R63 36k5
C50 10uF 50V
C51 10uF 50V
R60 10k
R58 1M
+12V
R61 16k2
R64 22k1
IC50 LM339
I
II
III
IV
7
6
1
9
8
14
11
10
13
5
4
3
2
12

Exploded view



2
13
12
19
9
20
3
11
14
4
8
5
16
10
7
1
6
21
22
18
15
17

Ersatzteilliste für L 386/16 HD 60/HD80
Parts list for L 386/16 HD 60/HD 80

Best.-Nr. Part.-No.	Bezeichnung	Description	Zeich.-Pos. Ref.-No.	Preisgruppe Price key
53 699 00	Styropor	Polyfoam		C 3
53 700 00	Faltkarton	Gift box		C 0
53 403 00	Gehäuseunterteil	Cabinet, bottom	1	D 7
53 404 00	Gehäuseoberteil	Cabinet, top	2	D 6
53 702 00	Frontblende	Front, mask	3	C 5
53 394 00	Netzteil	Power supply	4	F 9
53 711 00	Netzeingangsmodul	Net entrance unit	5	E 8
53 110 00	Platine CPU 386/16	P.C.B. CPU 386/16	6	K 2
53 808 00	Platine Steckplatz	P.C.B. slot	7	E 3
53 680 00	Platine LED	P.C.B. LED	8	C 3
53 402 00	Klappe FD	Flap FD	9	C 4
53 915 00	Verbindungskabel, Netz/CPU	Cable, power/CPU	10	C 2
52 794 00	Kabelbaum LED	Cable, LED	11	B 1
52 795 00	Kabelbaum Schloß	Cable, lock	12	A 7
53 175 00	Schlüsselschalter komplett	Switch, key assembly	13	C 6
54 017 00	Druckknopf Reset	Pushbutton Reset	14	A 4
50 020 00	Blindblech für Steckplatz	Plate, blind w. slot	15	A 6
51 456 00	Gehäusefuß	Leg, cabinet	16	A 4
54 115 00	HD-Laufwerk 60 MB	Hard disk drive 60 MB	17	K 4
54 116 00	HD-Laufwerk 80 MB	Hard disk drive 80 MB	17	K 5
54 028 00	HD-Kabel	Cable, HDD	18	C 3
50 021 00	FDD-Laufwerk 1,44 MB	Floppy disk drive 1.44 MB	19	F 9
51 443 00	FDD-Kabel	Cable, FDD	20	B 6
54 066 00	Lüfter	Fan	21	D 7
65 220 00	Schlüssel	Key		B 5
65 467 00	IC Bios-Kit	IC Bios-Kit		E 9
53 221 00	Tastatur (D)	Keyboard (D)		F 6
53 222 00	Tastatur (CH)	Keyboard (CH)		F 6
53 223 00	Tastatur (DK)	Keyboard (DK)		F 6
53 224 00	Tastatur (E)	Keyboard (E)		F 6
53 225 00	Tastatur (F)	Keyboard (F)		F 6
53 226 00	Tastatur (F) DUAL	Keyboard (F) DUAL		F 6
53 227 00	Tastatur (I)	Keyboard (I)		F 6
53 228 00	Tastatur (N)	Keyboard (N)		F 6
53 229 00	Tastatur (P)	Keyboard (P)		F 6
53 230 00	Tastatur (S/SF)	Keyboard (S/SF)		F 6
53 231 00	Tastatur (GR)	Keyboard (GR)		F 6
53 232 00	Tastatur (GB)	Keyboard (GB)		F 6

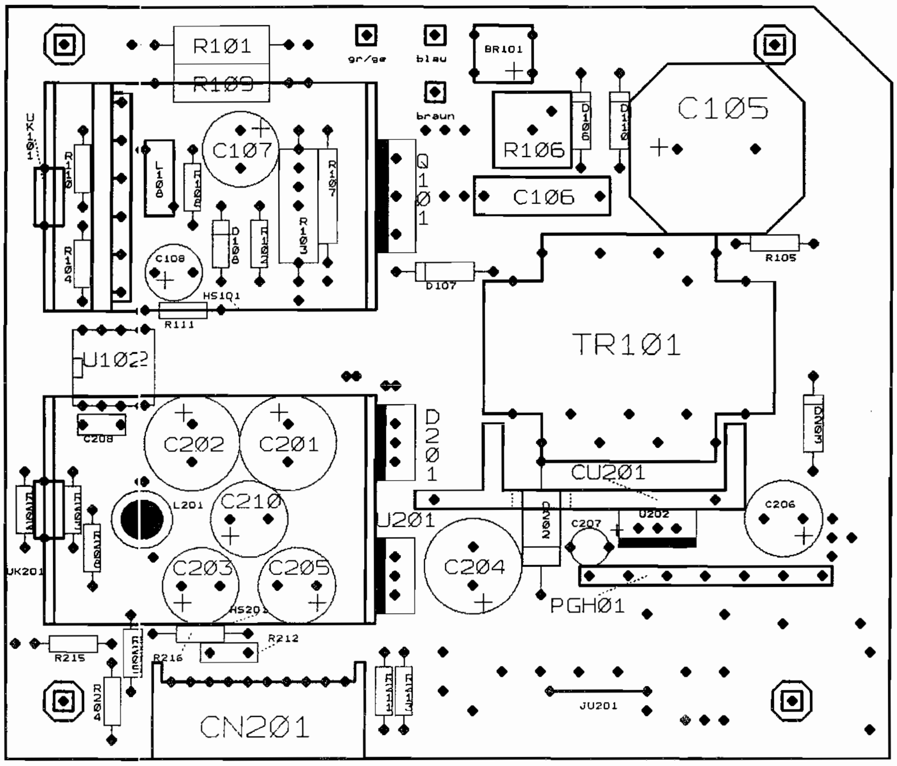
Reparaturpauschale/Repair all-inclusive price

53 110 00	Platine CPU 16 MHz	P.C.B. CPU 386/16	6	G 7

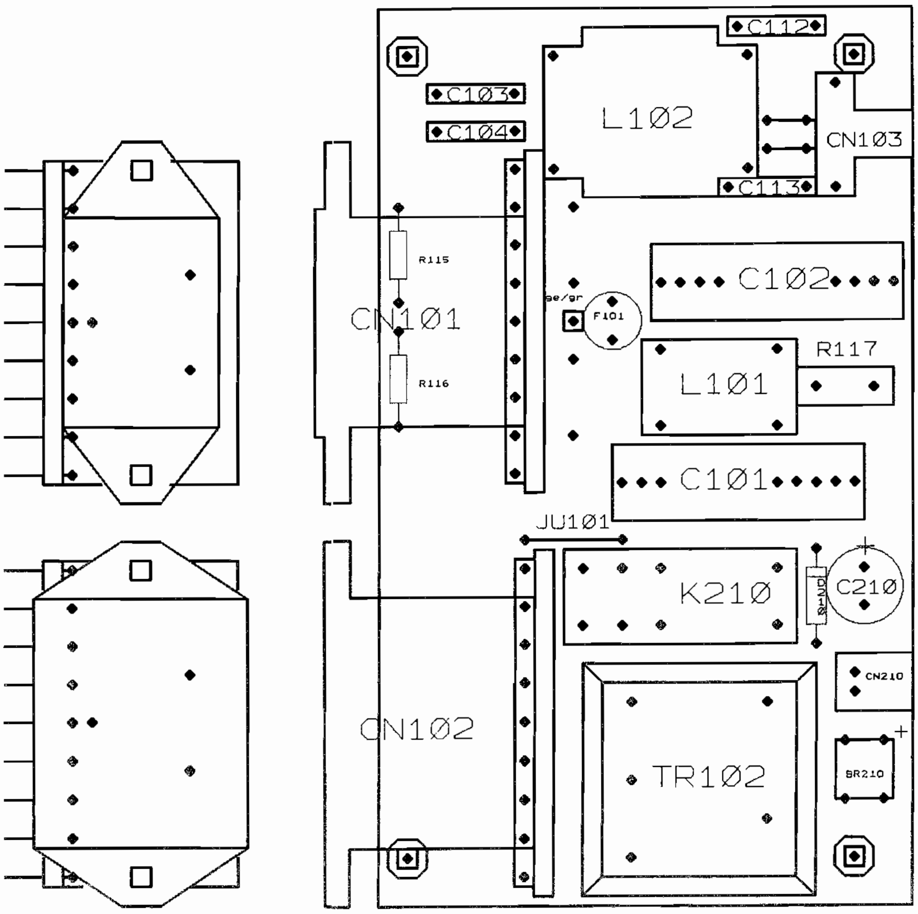
Note: All spare parts with countryindex are reserved for foreign distributors only.

All 3.5" and 5.25" floppydisks must be replaced by new ones. Schneider passes no exchange price to the distributor or dealer.

Power supply
Component side
L 386/16


R101
R109
gr/ge
blau
braun
BR101
C105
R106
Q101
C106
C107
C108
HS101
R111
D107
R105
TR101
U102
C202
C201
C208
D201
CU201
L201
C210
U201
C206
C207
U202
C203
C205
C204
PGH01
UK201
HS201
R212
R215
R216
JU201
CN201

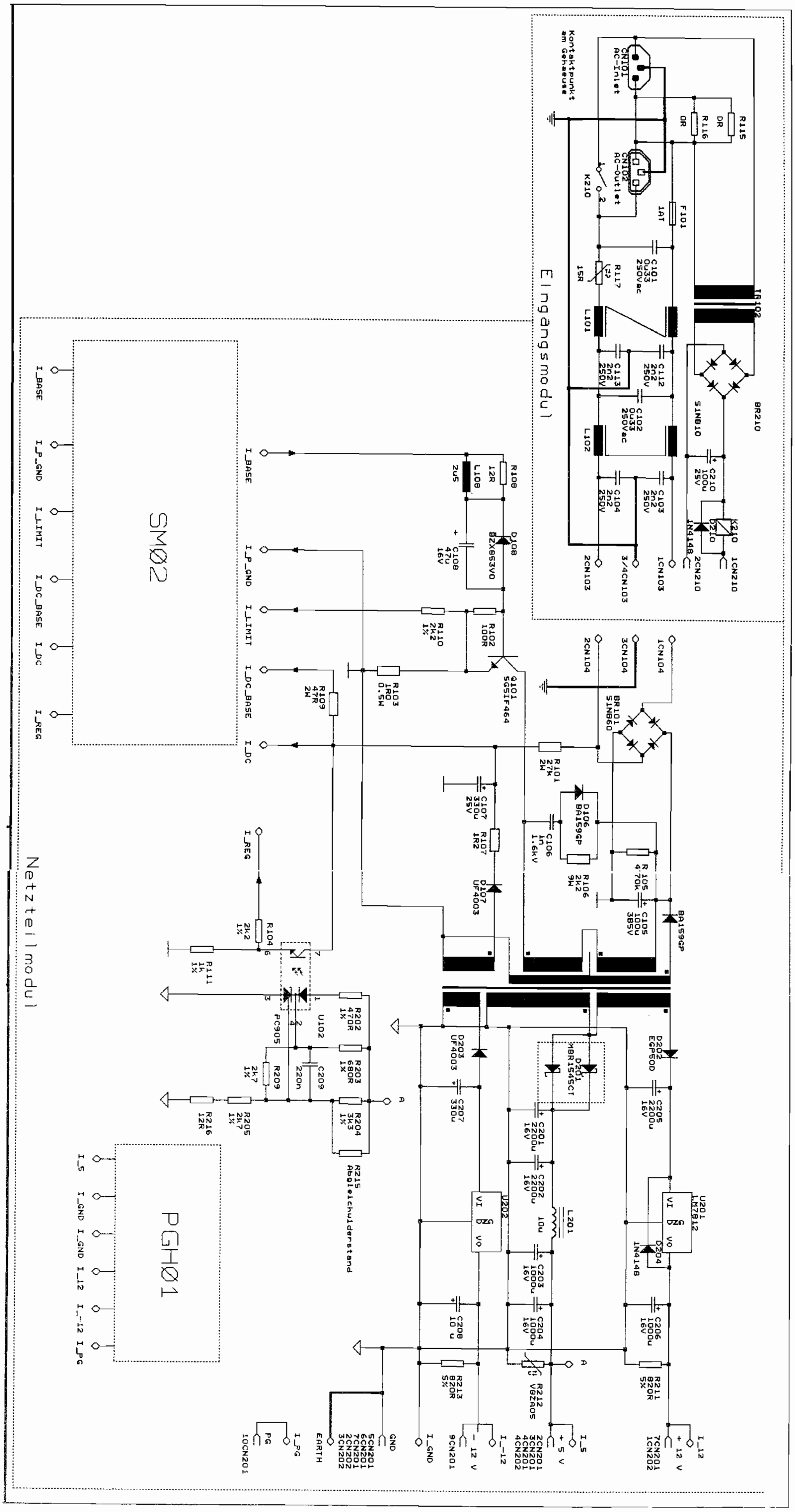
Intrance module
Component side
L 386/16

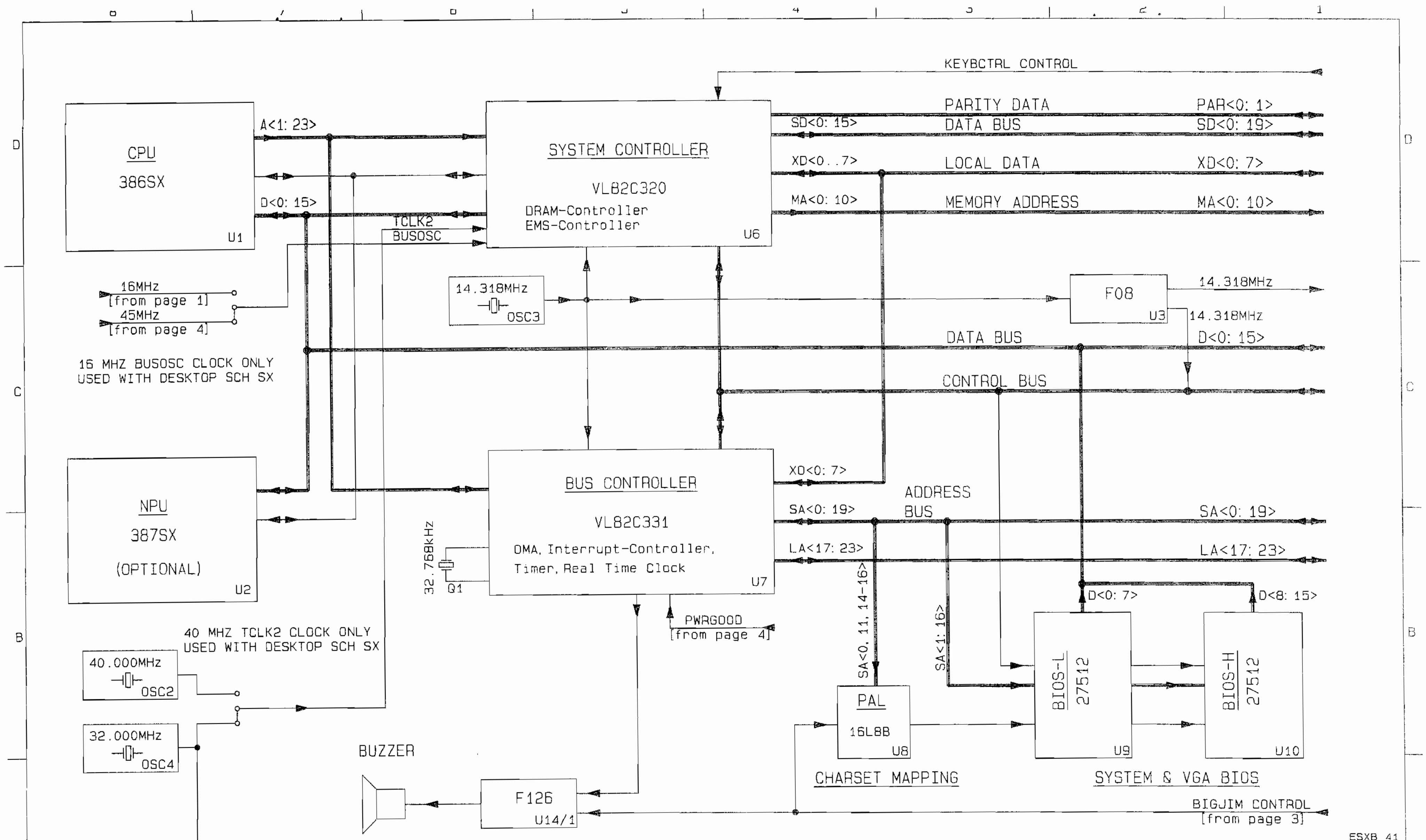

C112
C103
C104
L102
CN103
C113
R115
CN101
R116
C102
ge/gr
F101
L101
R117
C101
JU101
K210
C210
CN210
CN102
TR102
BR210

Schematic diagram

Power supply

L 386/16


Eingangsmodul
Netzteilmodul
SM02
PGH01
CN101 AC-Inlet
CN102 AC-Outlet
Kontaktpunkt am Gehaeuse
R115 0R
R116 0R
F101 1AT
K210
C101 0u33 250Vac
R117 15R
L101
C112 2n2 250V
C113 2n2 250V
C102 0u33 250Vac
L102
C103 2n2 250V
C104 2n2 250V
TR102
BR210 S1NB10
C210 100u 25V
D210 1N4148
K210
1CN210
2CN210
1CN103
3/4CN103
2CN103
1CN104
3CN104
2CN104
BR101 S1NB60
R108 12R
L108 2u5
D108 BZX8653V0
C108 47u 16V
R102 100R
R110 2k2 1%
Q101 SGSIF464
R103 1R0 0.5W
R109 47R 2W
R101 27k 2W
C107 330u 25V
R107 1R2
D107 UF4003
D106 BA159GP
C106 1n 1.6kV
R106 2k2 9W
R105 470k
C105 100u 385V
BA159GP
R104 2k2 1%
R111 1k 1%
U102 PC905
R202 470R 1%
R203 680R 1%
C209 220n
R209 2k7 1%
R205 2k7 1%
R216 12R
R204 3k3 1%
R215 Abgleichwiderstand
D203 UF4003
D202 EGP50D
D201 MBR1545CT
C207 330u
C205 2200u 16V
C201 2200u 16V
C202 2200u 16V
L201 10u
U202
U201 LM7812
D204 1N4148
C203 1000u 16V
C204 1000u 16V
C206 1000u 16V
C208 10 u
R213 820R 5%
R212 VB2A05
R211 820R 5%
I_BASE
I_P_GND
I_LIMIT
I_DC_BASE
I_DC
I_REG
I_5
I_GND
I_12
I_-12
I_PG
GND
EARTH
5CN201 6CN201 7CN201 3CN201 3CN202
PG
10CN201
9CN201
-12 V
2CN201 3CN201 4CN201 4CN202
+5 V
+12 V
7CN201 1CN202
A


CPU
386SX
U1
A<1: 23>
D<0: 15>
16MHz
[from page 1]
45MHz
[from page 4]
16 MHZ BUSOSC CLOCK ONLY
USED WITH DESKTOP SCH SX
NPU
387SX
(OPTIONAL)
U2
40 MHZ TCLK2 CLOCK ONLY
USED WITH DESKTOP SCH SX
40.000MHz
OSC2
32.000MHz
OSC4
TCLK2
BUSOSC
SYSTEM CONTROLLER
VL82C320
DRAM-Controller
EMS-Controller
U6
14.318MHz
OSC3
BUS CONTROLLER
VL82C331
DMA, Interrupt-Controller,
Timer, Real Time Clock
U7
32.768kHz
Q1
PWRGOOD
[from page 4]
KEYBCTRL CONTROL
SD<0: 15>
PARITY DATA
PAR<0: 1>
DATA BUS
SD<0: 19>
XD<0..7>
LOCAL DATA
XD<0: 7>
MA<0: 10>
MEMORY ADDRESS
MA<0: 10>
F08
U3
14.318MHz
14.318MHz
DATA BUS
D<0: 15>
CONTROL BUS
XD<0: 7>
ADDRESS
BUS
SA<0: 19>
SA<0: 19>
LA<17: 23>
LA<17: 23>
SA<0, 11, 14-16>
SA<1: 16>
D<0: 7>
D<8: 15>
PAL
16L8B
U8
CHARSET MAPPING
BIOS-L
27512
U9
BIOS-H
27512
U10
SYSTEM & VGA BIOS
BIGJIM CONTROL
[from page 3]
BUZZER
F126
U14/1
DIVIDE : 2
ACT74
U11/2
DIVIDE : 2
ACT74
U11/1
8MHz
[to page 2]
16MHz
[to page 1, 4]
ESXB_41
A
B
C
D
1
2
3
4
5
6
7
8

Schneider

DRAWN BY:
K. WINZEK
APPROVED:

TITLE:
BLOCK DIAGRAM
SINGLEBOARD I SX

USED ON:

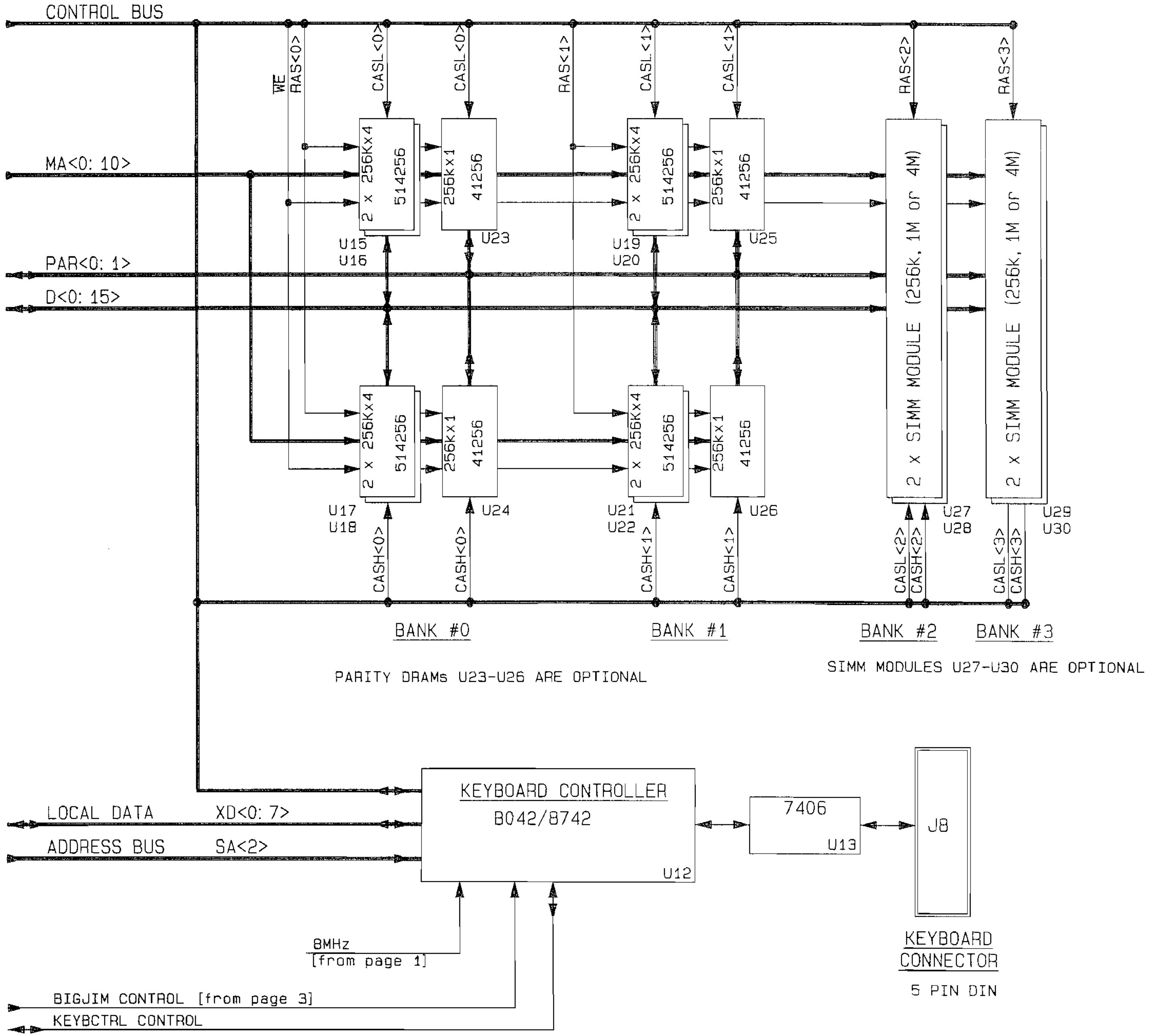
SIZE
A 3

52 603
53 110
53 198

REV
1

DATE: 12-17-90

SHEET: 1 of 4


CONTROL BUS
MA<0: 10>
PAR<0: 1>
D<0: 15>
WE
RAS<0>
CASL<0>
CASL<0>
RAS<1>
CASL<1>
CASL<1>
RAS<2>
RAS<3>
2 x 256Kx4
514256
256kx1
41256
U15
U16
U23
U19
U20
U25
U17
U18
U24
U21
U22
U26
2 x SIMM MODULE (256k, 1M or 4M)
U27
U28
U29
U30
CASH<0>
CASH<0>
CASH<1>
CASH<1>
CASL<2>
CASH<2>
CASL<3>
CASH<3>
BANK #0
BANK #1
BANK #2
BANK #3
PARITY DRAMs U23-U26 ARE OPTIONAL
SIMM MODULES U27-U30 ARE OPTIONAL
KEYBOARD CONTROLLER
8042/8742
U12
7406
U13
J8
LOCAL DATA
XD<0: 7>
ADDRESS BUS
SA<2>
8MHz
[from page 1]
BIGJIM CONTROL [from page 3]
KEYBCTRL CONTROL
KEYBOARD
CONNECTOR
5 PIN DIN

ESXB_42

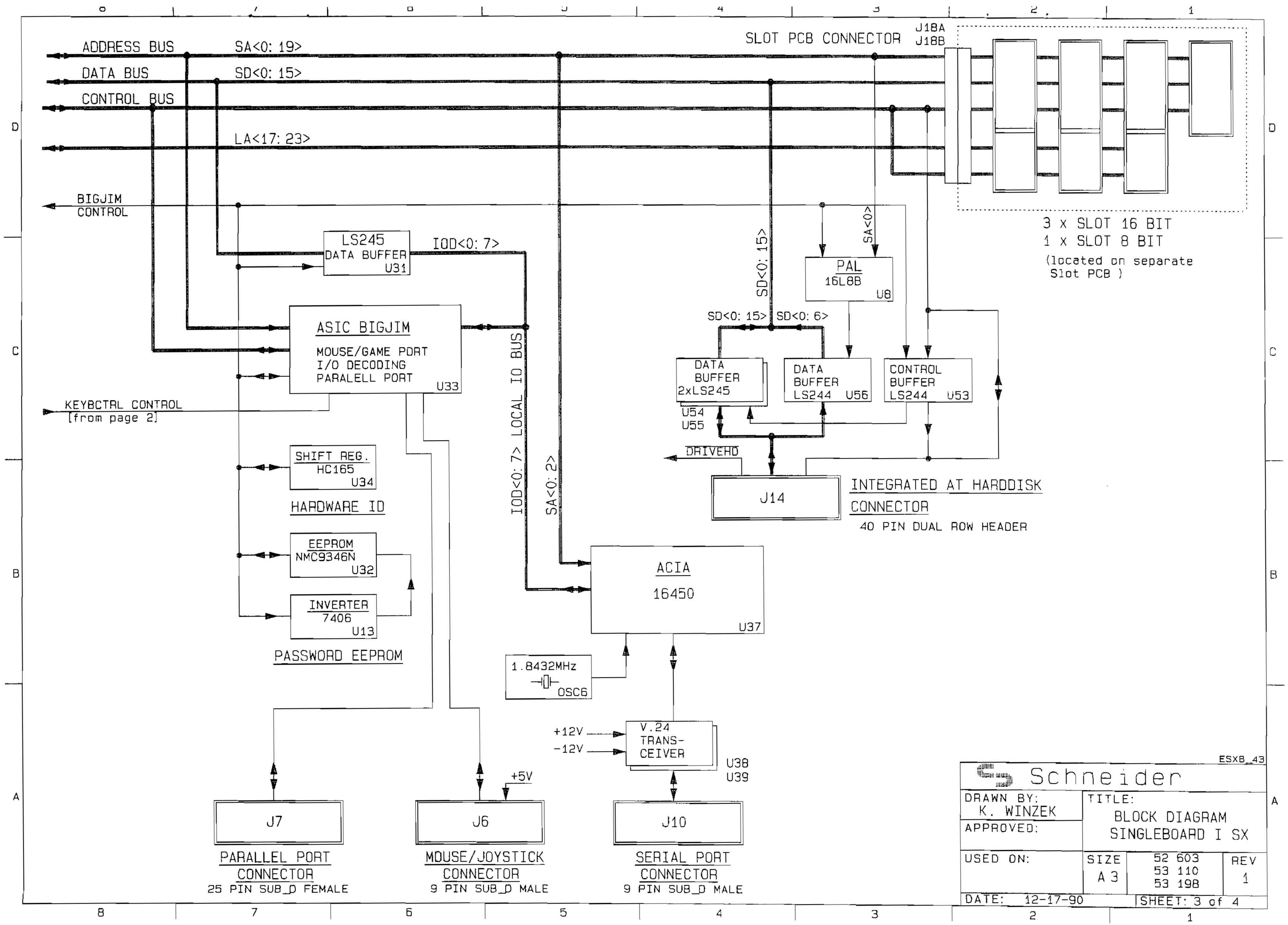
Schneider

DRAWN BY:
K. WINZEK
APPROVED:

TITLE:
BLOCK DIAGRAM
SINGLEBOARD I SX

USED ON:	SIZE		REV
	A 3	52 603 53 110 53 198	1

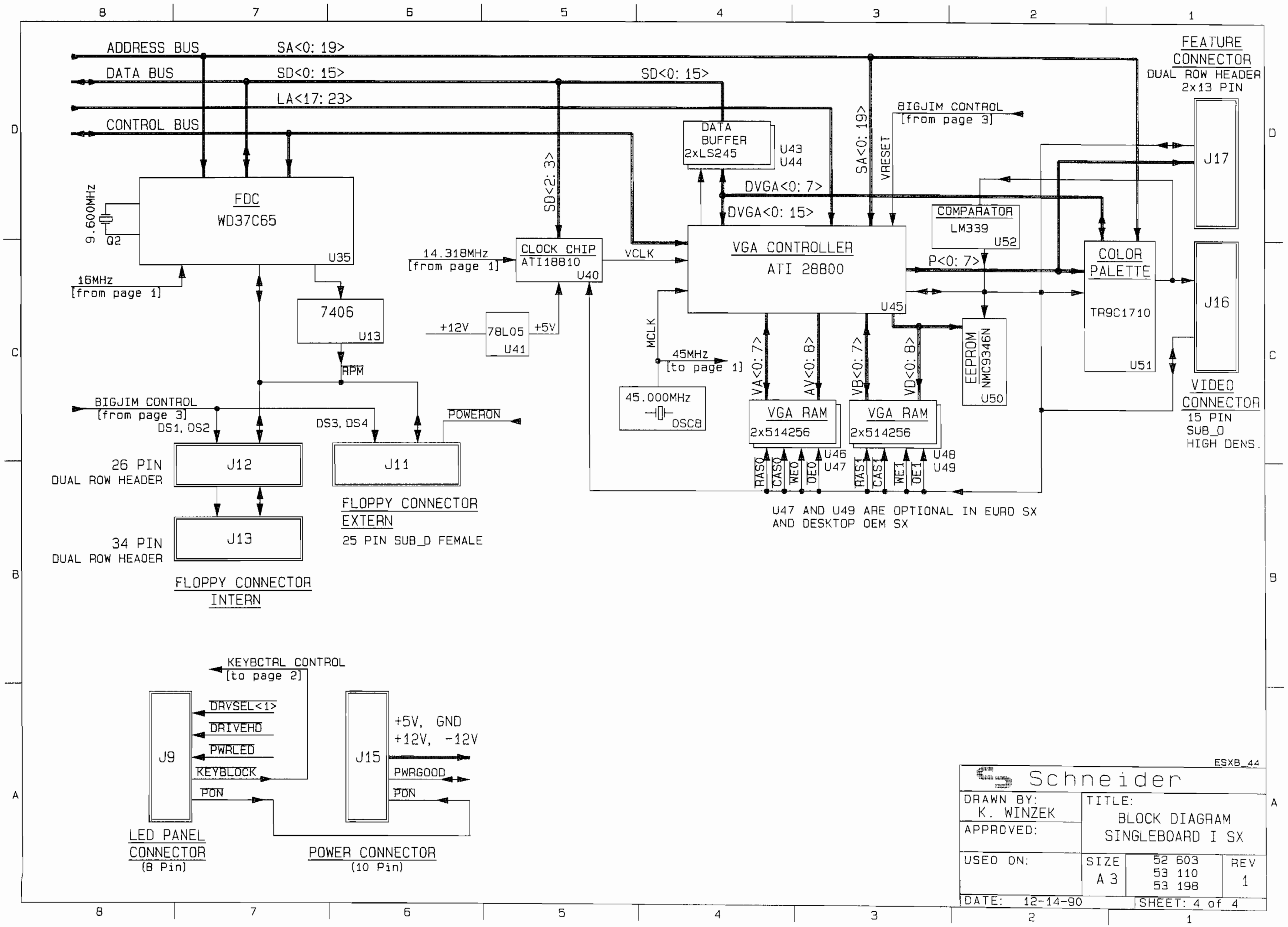
DATE: 12-17-90
SHEET: 2 of 4


ADDRESS BUS
SA<0: 19>
DATA BUS
SD<0: 15>
CONTROL BUS
LA<17: 23>
BIGJIM CONTROL
KEYBCTRL CONTROL [from page 2]
SLOT PCB CONNECTOR
J18A
J18B
3 x SLOT 16 BIT
1 x SLOT 8 BIT
(located on separate Slot PCB)
LS245 DATA BUFFER U31
IOD<0: 7>
ASIC BIGJIM
MOUSE/GAME PORT
I/O DECODING
PARALELL PORT
U33
IOD<0: 7> LOCAL IO BUS
SA<0: 2>
SHIFT REG. HC165 U34
HARDWARE ID
EEPROM NMC9346N U32
INVERTER 7406 U13
PASSWORD EEPROM
SD<0: 15>
SA<0>
PAL 16L8B U8
SD<0: 15>
SD<0: 6>
DATA BUFFER 2xLS245 U54 U55
DATA BUFFER LS244 U56
CONTROL BUFFER LS244 U53
DRIVEHD
J14
INTEGRATED AT HARDDISK CONNECTOR
40 PIN DUAL ROW HEADER
ACIA 16450 U37
1.8432MHz OSC6
+12V
-12V
V.24 TRANS-CEIVER
U38
U39
+5V
J7
J6
J10
PARALLEL PORT CONNECTOR
25 PIN SUB_D FEMALE
MOUSE/JOYSTICK CONNECTOR
9 PIN SUB_D MALE
SERIAL PORT CONNECTOR
9 PIN SUB_D MALE
A
B
C
D
1
2
3
4
5
6
7
8

ESXB_43

Schneider

DRAWN BY: K. WINZEK	TITLE: BLOCK DIAGRAM SINGLEBOARD I SX
APPROVED:	
USED ON:	SIZE A 3 — 52 603 53 110 53 198 — REV 1
DATE: 12-17-90	SHEET: 3 of 4


ADDRESS BUS
SA<0: 19>
DATA BUS
SD<0: 15>
LA<17: 23>
CONTROL BUS
9.600MHz
Q2
FDC
WD37C65
U35
16MHz
[from page 1]
7406
U13
RPM
BIGJIM CONTROL
[from page 3]
DS1, DS2
DS3, DS4
POWERON
J12
26 PIN
DUAL ROW HEADER
J13
34 PIN
DUAL ROW HEADER
FLOPPY CONNECTOR
INTERN
J11
FLOPPY CONNECTOR
EXTERN
25 PIN SUB_D FEMALE
14.318MHz
[from page 1]
CLOCK CHIP
ATI18810
U40
SD<2: 3>
+12V
78L05
U41
+5V
VCLK
MCLK
45MHz
[to page 1]
45.000MHz
OSC8
DATA
BUFFER
2xLS245
U43
U44
DVGA<0: 7>
DVGA<0: 15>
SD<0: 15>
SA<0: 19>
VRESET
BIGJIM CONTROL
[from page 3]
VGA CONTROLLER
ATI 28800
U45
P<0: 7>
COMPARATOR
LM339
U52
EEPROM
NMC9346N
U50
VA<0: 7>
AV<0: 8>
VB<0: 7>
VD<0: 8>
VGA RAM
2x514256
U46
U47
VGA RAM
2x514256
U48
U49
RAS0
CAS0
WE0
OE0
RAS1
CAS1
WE1
OE1
U47 AND U49 ARE OPTIONAL IN EURO SX
AND DESKTOP OEM SX
COLOR
PALETTE
TR9C1710
U51
J17
FEATURE
CONNECTOR
DUAL ROW HEADER
2x13 PIN
J16
VIDEO
CONNECTOR
15 PIN
SUB_D
HIGH DENS.
KEYBCTRL CONTROL
[to page 2]
J9
DRVSEL<1>
DRIVEHD
PWRLED
KEYBLOCK
PON
LED PANEL
CONNECTOR
(8 Pin)
J15
+5V, GND
+12V, -12V
PWRGOOD
PON
POWER CONNECTOR
(10 Pin)
8
7
6
5
4
3
2
1
D
C
B
A

ESXB_44

Schneider

DRAWN BY:
K. WINZEK

APPROVED:

TITLE:
BLOCK DIAGRAM
SINGLEBOARD I SX

USED ON:

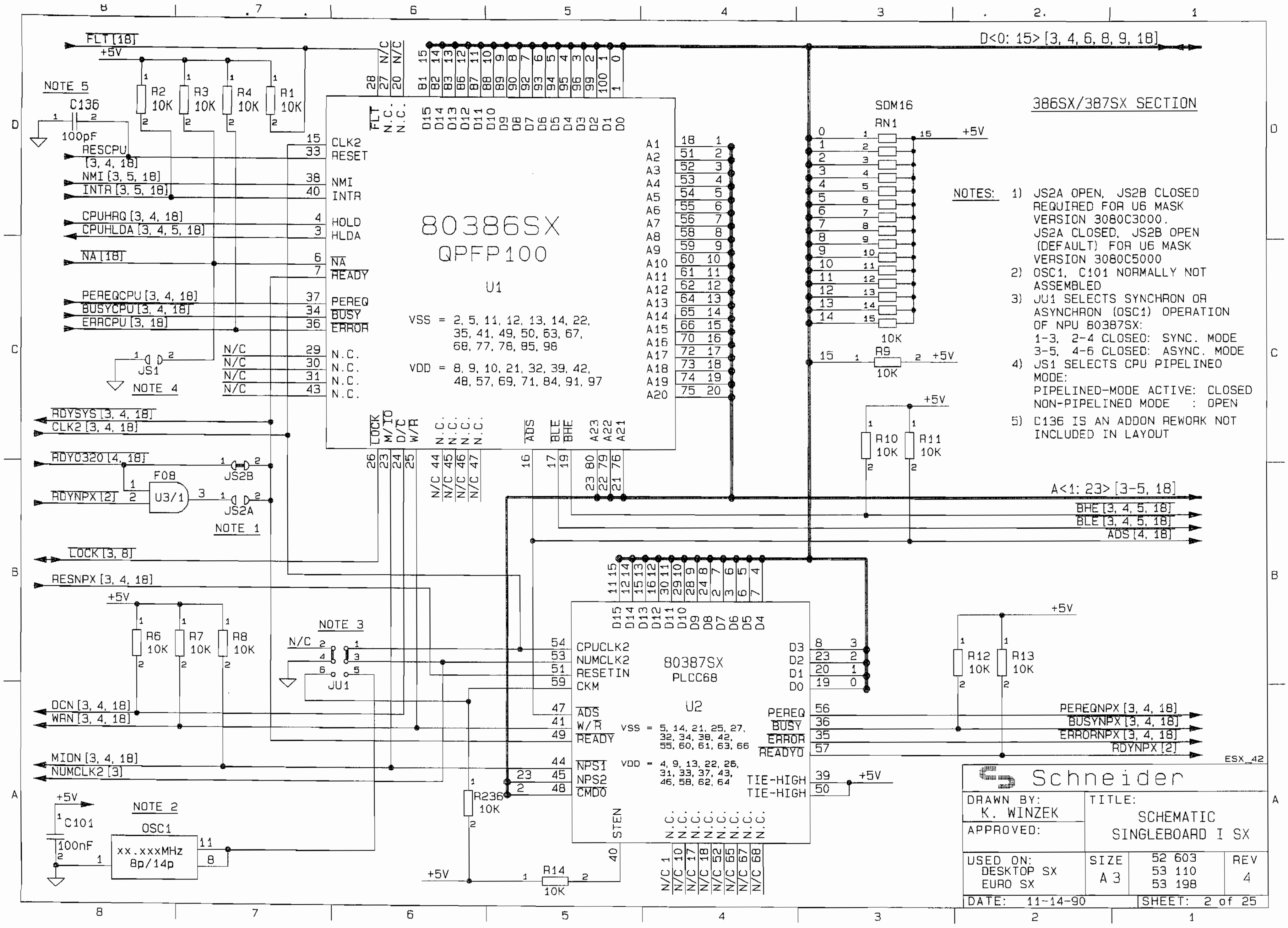
SIZE
A 3

52 603
53 110
53 198

REV
1

DATE: 12-14-90

SHEET: 4 of 4

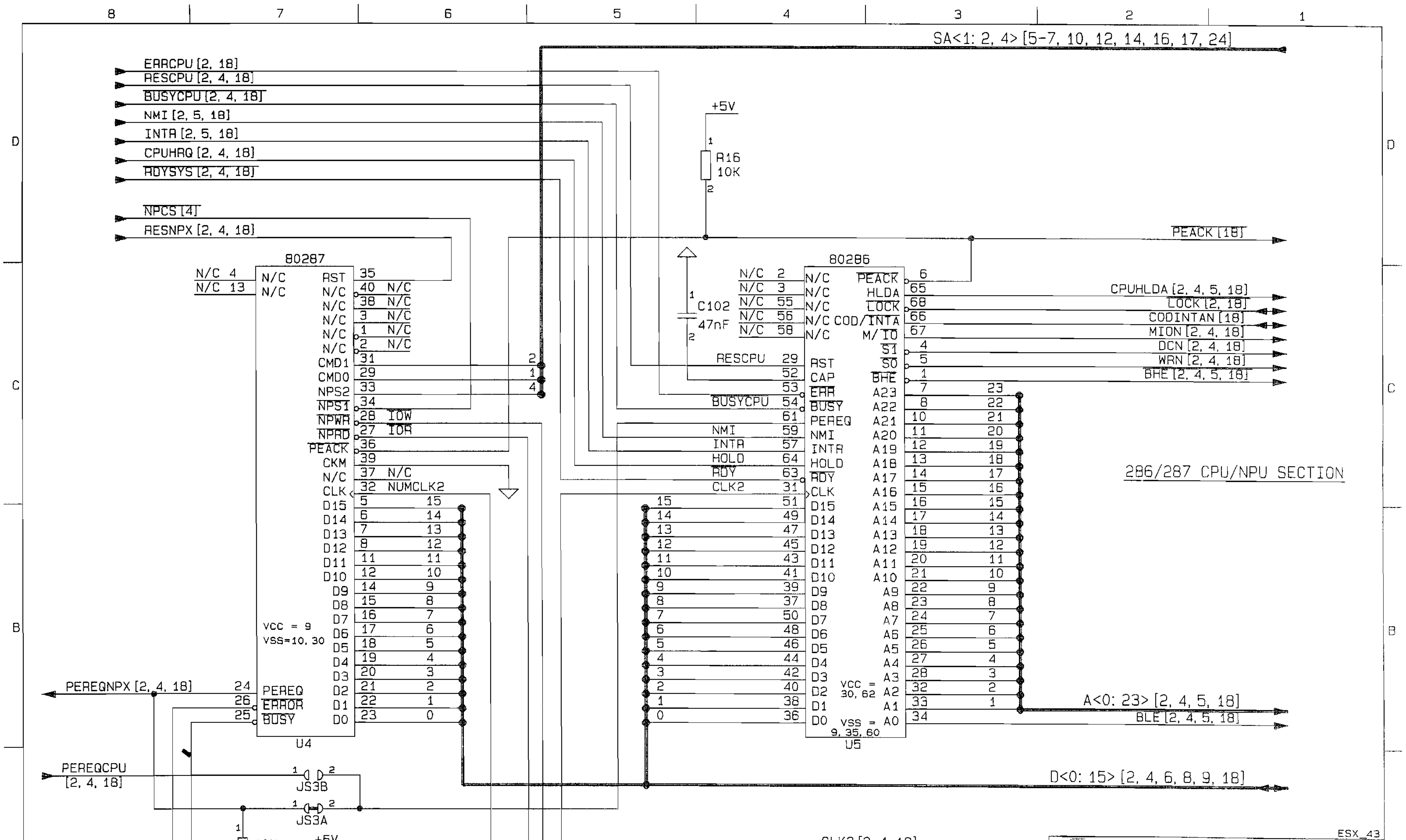

386SX/387SX SECTION
80386SX
QPFP100
U1
VSS = 2, 5, 11, 12, 13, 14, 22, 35, 41, 49, 50, 63, 67, 68, 77, 78, 85, 98
VDD = 8, 9, 10, 21, 32, 39, 42, 48, 57, 69, 71, 84, 91, 97
80387SX
PLCC68
U2
VSS = 5, 14, 21, 25, 27, 32, 34, 38, 42, 55, 60, 61, 63, 66
VDD = 4, 9, 13, 22, 26, 31, 33, 37, 43, 46, 58, 62, 64
CLK2
RESET
NMI
INTR
HOLD
HLDA
NA
READY
PEREQ
BUSY
ERROR
N.C.
FLT
LOCK
M/IO
D/C
W/R
ADS
BLE
BHE
A23
A22
A21
CPUCLK2
NUMCLK2
RESETIN
CKM
NPS1
NPS2
CMD0
STEN
TIE-HIGH
READYO
FLT [18]
+5V
NOTE 5
C136
100pF
RESCPU [3, 4, 18]
NMI [3, 5, 18]
INTR [3, 5, 18]
CPUHRQ [3, 4, 18]
CPUHLDA [3, 4, 5, 18]
NA [18]
PEREQCPU [3, 4, 18]
BUSYCPU [3, 4, 18]
ERRCPU [3, 18]
JS1
NOTE 4
RDYSYS [3, 4, 18]
CLK2 [3, 4, 18]
RDY0320 [4, 18]
JS2B
F08
U3/1
RDYNPX [2]
JS2A
NOTE 1
LOCK [3, 8]
RESNPX [3, 4, 18]
R1 10K
R2 10K
R3 10K
R4 10K
R6 10K
R7 10K
R8 10K
R9 10K
R10 10K
R11 10K
R12 10K
R13 10K
R14 10K
R236 10K
NOTE 3
JU1
DCN [3, 4, 18]
WRN [3, 4, 18]
MIDN [3, 4, 18]
NUMCLK2 [3]
C101
100nF
NOTE 2
OSC1
xx.xxxMHz
8p/14p
SDM16
RN1
D<0: 15> [3, 4, 6, 8, 9, 18]
A<1: 23> [3-5, 18]
BHE [3, 4, 5, 18]
BLE [3, 4, 5, 18]
ADS [4, 18]
PEREQNPX [3, 4, 18]
BUSYNPX [3, 4, 18]
ERRORNPX [3, 4, 18]
RDYNPX [2]

386SX/387SX SECTION

NOTES:
1) JS2A OPEN, JS2B CLOSED REQUIRED FOR U6 MASK VERSION 3080C3000. JS2A CLOSED, JS2B OPEN (DEFAULT) FOR U6 MASK VERSION 3080C5000
2) OSC1, C101 NORMALLY NOT ASSEMBLED
3) JU1 SELECTS SYNCHRON OR ASYNCHRON (OSC1) OPERATION OF NPU 80387SX:
1-3, 2-4 CLOSED: SYNC. MODE
3-5, 4-6 CLOSED: ASYNC. MODE
4) JS1 SELECTS CPU PIPELINED MODE:
PIPELINED-MODE ACTIVE: CLOSED
NON-PIPELINED MODE : OPEN
5) C136 IS AN ADDON REWORK NOT INCLUDED IN LAYOUT

ESX_42

Schneider	TITLE:		
DRAWN BY: K. WINZEK APPROVED:	SCHEMATIC SINGLEBOARD I SX		
USED ON: DESKTOP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 11-14-90	SHEET: 2 of 25		


286/287 CPU/NPU SECTION
SA<1: 2, 4> [5-7, 10, 12, 14, 16, 17, 24]
ERRCPU [2, 18]
RESCPU [2, 4, 18]
BUSYCPU [2, 4, 18]
NMI [2, 5, 18]
INTR [2, 5, 18]
CPUHRQ [2, 4, 18]
RDYSYS [2, 4, 18]
NPCS [4]
RESNPX [2, 4, 18]
+5V
R16
10K
PEACK [18]
C102
47nF
80287
N/C 4
N/C 13
N/C
RST 35
N/C 40 N/C
N/C 38 N/C
N/C 3 N/C
N/C 1 N/C
N/C 2 N/C
CMD1 31
CMD0 29
NPS2 33
NPS1 34
NPWR 28 IOW
NPRD 27 IOR
PEACK 36
CKM 39
N/C 37 N/C
CLK 32 NUMCLK2
D15 5 15
D14 6 14
D13 7 13
D12 8 12
D11 11 11
D10 12 10
D9 14 9
D8 15 8
D7 16 7
D6 17 6
D5 18 5
D4 19 4
D3 20 3
D2 21 2
D1 22 1
D0 23 0
VCC = 9
VSS=10, 30
PEREQ 24
ERROR 26
BUSY 25
U4
2
1
4
80286
N/C 2
N/C 3
N/C 55
N/C 56
N/C 58
PEACK 6
HLDA 65
LOCK 68
COD/INTA 66
M/IO 67
S1 4
S0 5
BHE 1
RESCPU 29 RST
52 CAP
53 ERR
BUSYCPU 54 BUSY
61 PEREQ
NMI 59 NMI
INTR 57 INTR
HOLD 64 HOLD
RDY 63 RDY
CLK2 31 CLK
15 51 D15
14 49 D14
13 47 D13
12 45 D12
11 43 D11
10 41 D10
9 39 D9
8 37 D8
7 50 D7
6 48 D6
5 46 D5
4 44 D4
3 42 D3
2 40 D2
1 38 D1
0 36 D0
VCC = 30, 62
VSS = 9, 35, 60
A23 7 23
A22 8 22
A21 10 21
A20 11 20
A19 12 19
A18 13 18
A17 14 17
A16 15 16
A15 16 15
A14 17 14
A13 18 13
A12 19 12
A11 20 11
A10 21 10
A9 22 9
A8 23 8
A7 24 7
A6 25 6
A5 26 5
A4 27 4
A3 28 3
A2 32 2
A1 33 1
A0 34
U5
CPUHLDA [2, 4, 5, 18]
LOCK [2, 18]
CODINTAN [18]
MION [2, 4, 18]
DCN [2, 4, 18]
WRN [2, 4, 18]
BHE [2, 4, 5, 18]
A<0: 23> [2, 4, 5, 18]
BLE [2, 4, 5, 18]
D<0: 15> [2, 4, 6, 8, 9, 18]
PEREQNPX [2, 4, 18]
PEREQCPU [2, 4, 18]
JS3B
JS3A
10K
R17
+5V
R18
10K
CLK2 [2, 4, 18]
IOW [4, 5, 7, 10, 11, 14, 17, 24]
IOR [4, 5, 7, 10, 11, 14, 17, 24]
NUMCLK2 [2]
BUSYNPX [2, 4, 18]
ERRORNPX [2, 4, 18]
8 7 6 5 4 3 2 1
D C B A

ESX_43

Schneider

DRAWN BY: K. WINZEK

APPROVED:

TITLE: SCHEMATIC SINGLEBOARD I SX

USED ON: DESKTOP SX EURO SX

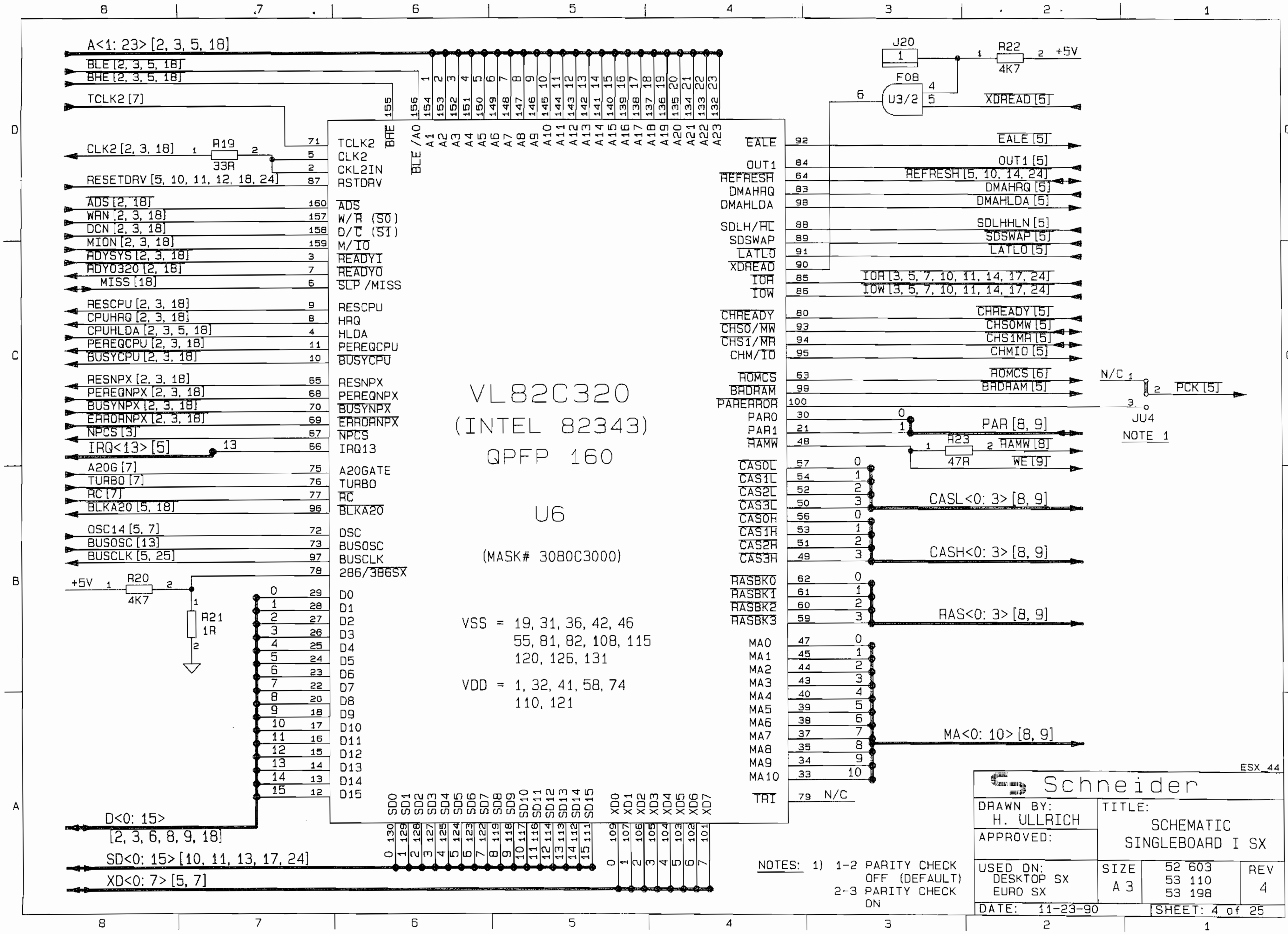
SIZE A 3

52 603
53 110
53 198

REV 4

DATE: 05-21-90

SHEET: 3 of 25

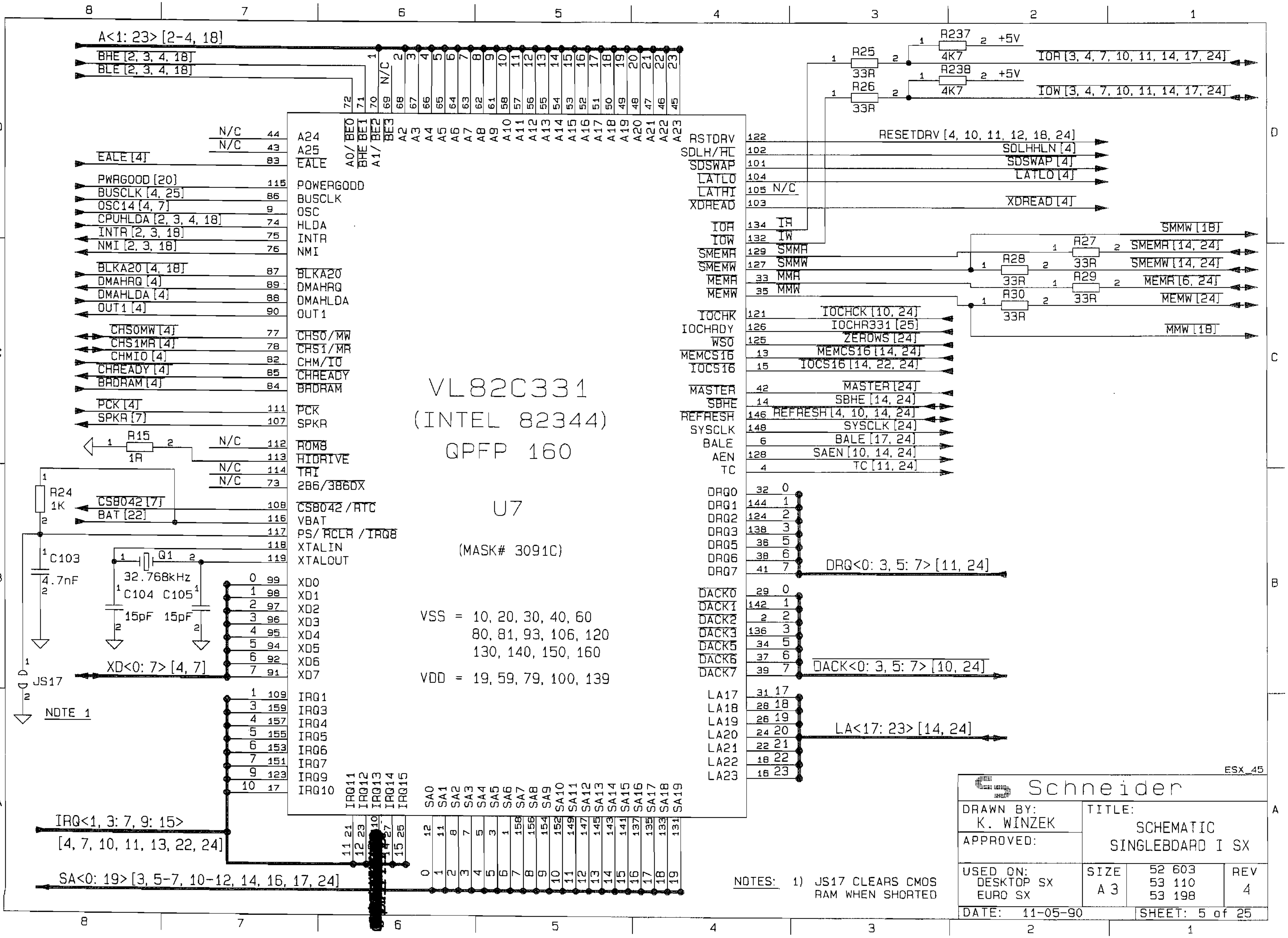


A<1: 23> [2, 3, 5, 18]
BLE [2, 3, 5, 18]
BHE [2, 3, 5, 18]
TCLK2 [7]
CLK2 [2, 3, 18]
R19
33R
RESETDRV [5, 10, 11, 12, 18, 24]
ADS [2, 18]
WRN [2, 3, 18]
DCN [2, 3, 18]
MION [2, 3, 18]
RDYSYS [2, 3, 18]
RDY0320 [2, 18]
MISS [18]
RESCPU [2, 3, 18]
CPUHRQ [2, 3, 18]
CPUHLDA [2, 3, 5, 18]
PEREQCPU [2, 3, 18]
BUSYCPU [2, 3, 18]
RESNPX [2, 3, 18]
PEREQNPX [2, 3, 18]
BUSYNPX [2, 3, 18]
ERRORNPX [2, 3, 18]
NPCS [3]
IRQ<13> [5]
A20G [7]
TURBO [7]
RC [7]
BLKA20 [5, 18]
OSC14 [5, 7]
BUSOSC [13]
BUSCLK [5, 25]
+5V
R20
4K7
R21
1R
D<0: 15>
[2, 3, 6, 8, 9, 18]
SD<0: 15> [10, 11, 13, 17, 24]
XD<0: 7> [5, 7]
TCLK2
CLK2
CKL2IN
RSTDRV
ADS
W/R (S0)
D/C (S1)
M/IO
READYI
READYO
SLP /MISS
RESCPU
HRQ
HLDA
PEREQCPU
BUSYCPU
RESNPX
PEREQNPX
BUSYNPX
ERRORNPX
NPCS
IRQ13
A20GATE
TURBO
RC
BLKA20
OSC
BUSOSC
BUSCLK
286/386SX
D0
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
BHE
BLE /A0
A1 … A23
SD0 … SD15
XD0 … XD7
VL82C320
(INTEL 82343)
QPFP 160
U6
(MASK# 3080C3000)
VSS = 19, 31, 36, 42, 46
55, 81, 82, 108, 115
120, 126, 131
VDD = 1, 32, 41, 58, 74
110, 121
EALE
OUT1
REFRESH
DMAHRQ
DMAHLDA
SDLH/HL
SDSWAP
LATLO
XDREAD
IOR
IOW
CHREADY
CHS0/MW
CHS1/MR
CHM/IO
ROMCS
BADRAM
PARERROR
PAR0
PAR1
RAMW
CAS0L
CAS1L
CAS2L
CAS3L
CAS0H
CAS1H
CAS2H
CAS3H
RASBK0
RASBK1
RASBK2
RASBK3
MA0
MA1
MA2
MA3
MA4
MA5
MA6
MA7
MA8
MA9
MA10
TRI
N/C
J20
R22
4K7
+5V
F08
U3/2
XDREAD [5]
EALE [5]
OUT1 [5]
REFRESH [5, 10, 14, 24]
DMAHRQ [5]
DMAHLDA [5]
SDLHHLN [5]
SDSWAP [5]
LATLO [5]
IOR [3, 5, 7, 10, 11, 14, 17, 24]
IOW [3, 5, 7, 10, 11, 14, 17, 24]
CHREADY [5]
CHS0MW [5]
CHS1MR [5]
CHMIO [5]
ROMCS [6]
BADRAM [5]
N/C
PCK [5]
JU4
NOTE 1
PAR [8, 9]
R23
47R
RAMW [8]
WE [9]
CASL<0: 3> [8, 9]
CASH<0: 3> [8, 9]
RAS<0: 3> [8, 9]
MA<0: 10> [8, 9]
ESX_44

NOTES: 1) 1-2 PARITY CHECK OFF (DEFAULT)
2-3 PARITY CHECK ON

Schneider

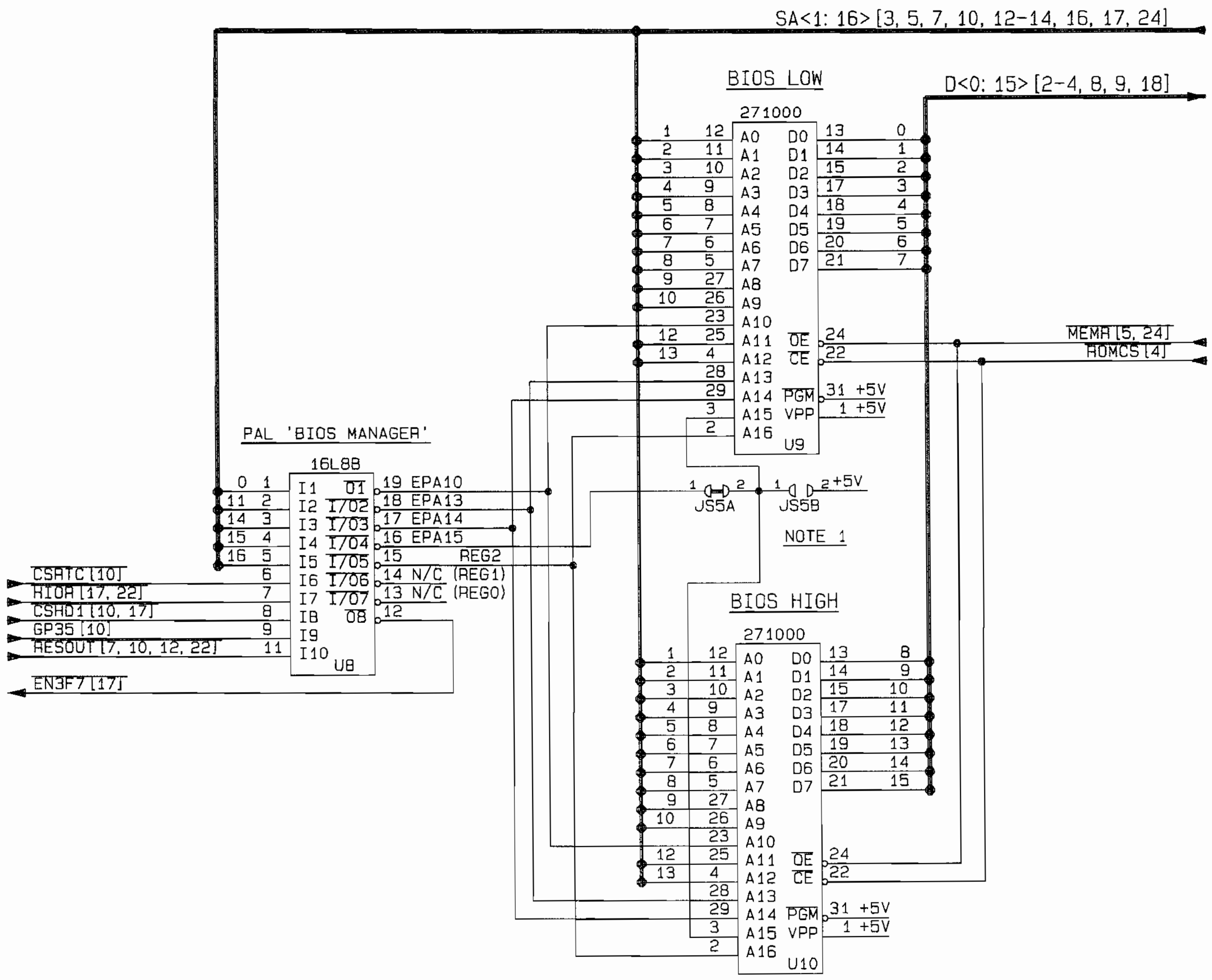
DRAWN BY: H. ULLRICH	TITLE: SCHEMATIC SINGLEBOARD I SX		
APPROVED:			
USED ON: DESKTOP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 11-23-90		SHEET: 4 of 25	


VL82C331
(INTEL 82344)
QPFP 160
U7
(MASK# 3091C)
VSS = 10, 20, 30, 40, 60
80, 81, 93, 106, 120
130, 140, 150, 160
VDD = 19, 59, 79, 100, 139
A<1: 23> [2-4, 18]
BHE [2, 3, 4, 18]
BLE [2, 3, 4, 18]
EALE [4]
PWRGOOD [20]
BUSCLK [4, 25]
OSC14 [4, 7]
CPUHLDA [2, 3, 4, 18]
INTR [2, 3, 18]
NMI [2, 3, 18]
BLKA20 [4, 18]
DMAHRQ [4]
DMAHLDA [4]
OUT1 [4]
CHS0MW [4]
CHS1MR [4]
CHMIO [4]
CHREADY [4]
BRDRAM [4]
PCK [4]
SPKR [7]
R15
1R
N/C
R24
1K
CS8042 [7]
BAT [22]
C103
4.7nF
Q1
32.768kHz
C104 C105
15pF 15pF
XD<0: 7> [4, 7]
JS17
NOTE 1
IRQ<1, 3: 7, 9: 15>
[4, 7, 10, 11, 13, 22, 24]
SA<0: 19> [3, 5-7, 10-12, 14, 16, 17, 24]
A24
A25
EALE
POWERGOOD
BUSCLK
OSC
HLDA
INTR
NMI
BLKA20
DMAHRQ
DMAHLDA
OUT1
CHS0/MW
CHS1/MR
CHM/IO
CHREADY
BRDRAM
PCK
SPKR
ROM8
HIDRIVE
TRI
286/386DX
CS8042/RTC
VBAT
PS/RCLR/IRQ8
XTALIN
XTALOUT
XD0
XD1
XD2
XD3
XD4
XD5
XD6
XD7
IRQ1
IRQ3
IRQ4
IRQ5
IRQ6
IRQ7
IRQ9
IRQ10
IRQ11
IRQ12
IRQ13
IRQ14
IRQ15
SA0
SA1
SA2
SA3
SA4
SA5
SA6
SA7
SA8
SA9
SA10
SA11
SA12
SA13
SA14
SA15
SA16
SA17
SA18
SA19
A0/BE0
BHE BE1
A1/BE2
BE3
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
A16
A17
A18
A19
A20
A21
A22
A23
RSTDRV
SDLH/HL
SDSWAP
LATLO
LATHI
XDREAD
IOR
IOW
SMEMR
SMEMW
MEMR
MEMW
IOCHK
IOCHRDY
WS0
MEMCS16
IOCS16
MASTER
SBHE
REFRESH
SYSCLK
BALE
AEN
TC
DRQ0
DRQ1
DRQ2
DRQ3
DRQ5
DRQ6
DRQ7
DACK0
DACK1
DACK2
DACK3
DACK5
DACK6
DACK7
LA17
LA18
LA19
LA20
LA21
LA22
LA23
R25
33R
R26
33R
R237
4K7
R238
4K7
+5V
IOR [3, 4, 7, 10, 11, 14, 17, 24]
IOW [3, 4, 7, 10, 11, 14, 17, 24]
RESETDRV [4, 10, 11, 12, 18, 24]
SDLHHLN [4]
SDSWAP [4]
LATLO [4]
XDREAD [4]
IR
IW
SMMR
SMMW
MMR
MMW
R27
R28
R29
R30
33R
SMMW [18]
SMEMR [14, 24]
SMEMW [14, 24]
MEMR [6, 24]
MEMW [24]
MMW [18]
IOCHCK [10, 24]
IOCHR331 [25]
ZEROWS [24]
MEMCS16 [14, 24]
IOCS16 [14, 22, 24]
MASTER [24]
SBHE [14, 24]
REFRESH [4, 10, 14, 24]
SYSCLK [24]
BALE [17, 24]
SAEN [10, 14, 24]
TC [11, 24]
DRQ<0: 3, 5: 7> [11, 24]
DACK<0: 3, 5: 7> [10, 24]
LA<17: 23> [14, 24]
ESX_45

NOTES: 1) JS17 CLEARS CMOS
RAM WHEN SHORTED

Schneider

DRAWN BY: K. WINZEK	TITLE: SCHEMATIC SINGLEBOARD I SX		
APPROVED:			
USED ON: DESKTOP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 11-05-90	SHEET: 5 of 25		


SA<1: 16> [3, 5, 7, 10, 12-14, 16, 17, 24]
D<0: 15> [2-4, 8, 9, 18]
BIOS LOW
271000
U9
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
A16
D0
D1
D2
D3
D4
D5
D6
D7
OE
CE
PGM
VPP
31 +5V
1 +5V
MEMR [5, 24]
ROMCS [4]
PAL 'BIOS MANAGER'
16L88
U8
I1
I2
I3
I4
I5
I6
I7
I8
I9
I10
O1
I/O2
I/O3
I/O4
I/O5
I/O6
I/O7
O8
19 EPA10
18 EPA13
17 EPA14
16 EPA15
15 REG2
14 N/C (REG1)
13 N/C (REG0)
12
CSRTC [10]
HIOR [17, 22]
CSHD1 [10, 17]
GP35 [10]
RESOUT [7, 10, 12, 22]
EN3F7 [17]
JS5A
JS5B
+5V
NOTE 1
BIOS HIGH
271000
U10

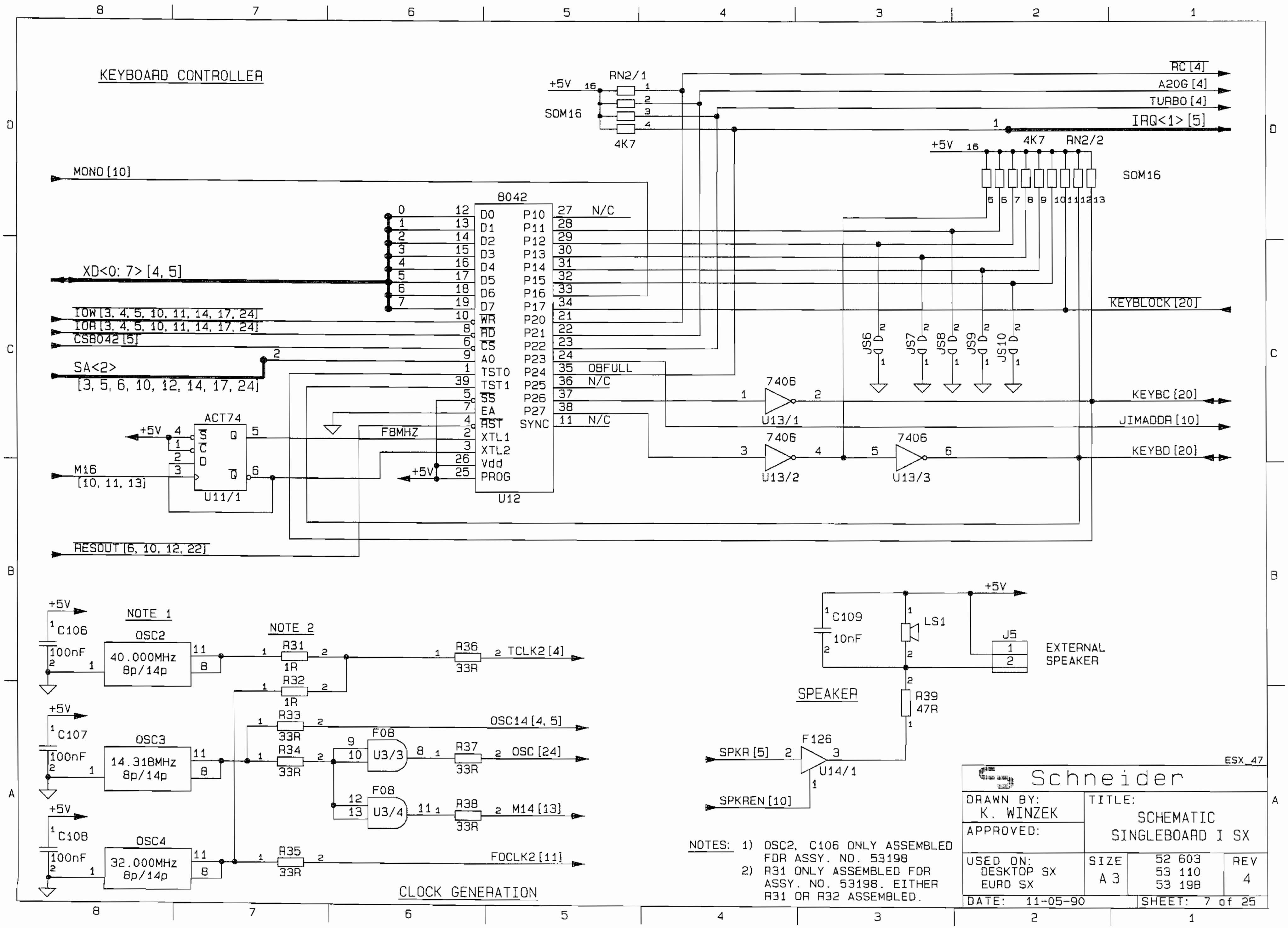
NOTES: 1) 1MBit BIOS: JS5A CLOSED
JS5B OPEN
512KBit BIOS: JS5A CLOSED
JS5B OPEN
256KBit BIOS: JS5A OPEN
JS5B CLOSED

ESX_46

Schneider

DRAWN BY: K. WINZEK	TITLE: SCHEMATIC SINGLEBOARD I SX
APPROVED:	

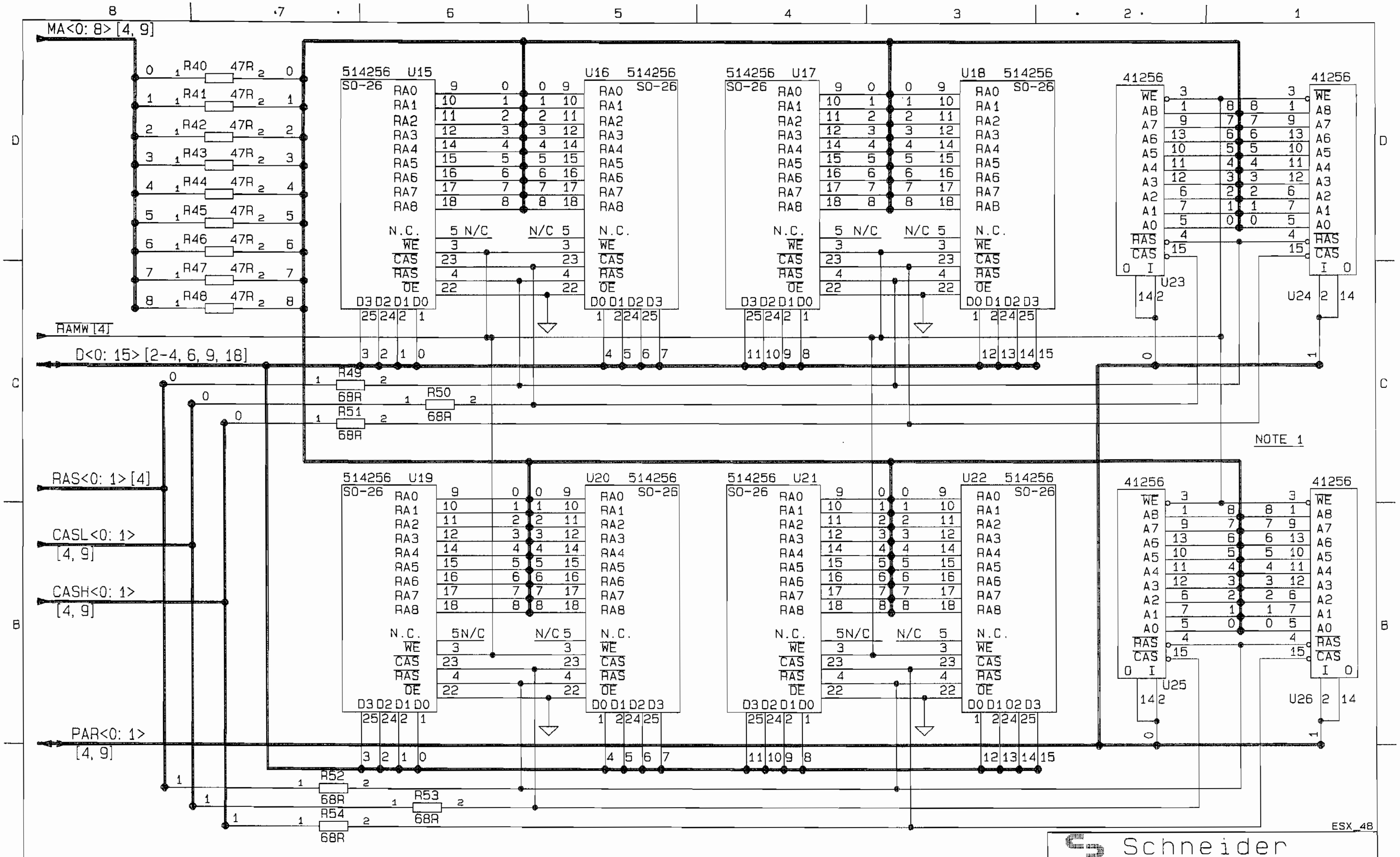
USED ON:	SIZE		REV
DESKTOP SX EURO SX	A 3	52 603 53 110 53 198	4
DATE: 08-17-90		SHEET: 6 of 25	


KEYBOARD CONTROLLER
+5V
RN2/1
SOM16
4K7
RC [4]
A20G [4]
TURBO [4]
IRQ<1> [5]
RN2/2
MONO [10]
8042
U12
D0 D1 D2 D3 D4 D5 D6 D7
WR RD CS A0 TST0 TST1 SS EA RST XTL1 XTL2 Vdd PROG
P10 P11 P12 P13 P14 P15 P16 P17 P20 P21 P22 P23 P24 P25 P26 P27 SYNC
N/C
OBFULL
XD<0: 7> [4, 5]
IOW [3, 4, 5, 10, 11, 14, 17, 24]
IOR [3, 4, 5, 10, 11, 14, 17, 24]
CS8042 [5]
SA<2>
[3, 5, 6, 10, 12, 14, 17, 24]
ACT74
U11/1
M16
[10, 11, 13]
F8MHZ
RESOUT [6, 10, 12, 22]
KEYBLOCK [20]
JS6
JS7
JS8
JS9
JS10
7406
U13/1
U13/2
U13/3
KEYBC [20]
JIMADDR [10]
KEYBD [20]
C106
100nF
NOTE 1
OSC2
40.000MHz
8p/14p
NOTE 2
R31
1R
R32
1R
R36
33R
TCLK2 [4]
C107
OSC3
14.318MHz
R33
33R
OSC14 [4, 5]
R34
33R
F08
U3/3
R37
OSC [24]
U3/4
R38
M14 [13]
C108
OSC4
32.000MHz
R35
FOCLK2 [11]
CLOCK GENERATION
C109
10nF
LS1
J5
EXTERNAL
SPEAKER
SPEAKER
R39
47R
F126
U14/1
SPKR [5]
SPKREN [10]
ESX_47

NOTES:
1) OSC2, C106 ONLY ASSEMBLED FOR ASSY. NO. 53198
2) R31 ONLY ASSEMBLED FOR ASSY. NO. 53198. EITHER R31 OR R32 ASSEMBLED.

Schneider

DRAWN BY: K. WINZEK	TITLE: SCHEMATIC SINGLEBOARD I SX		
APPROVED:			
USED ON: DESKTOP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 11-05-90		SHEET: 7 of 25	


MA<0: 8> [4, 9]
R40 47R
R41 47R
R42 47R
R43 47R
R44 47R
R45 47R
R46 47R
R47 47R
R48 47R
RAMW [4]
D<0: 15> [2-4, 6, 9, 18]
RAS<0: 1> [4]
CASL<0: 1> [4, 9]
CASH<0: 1> [4, 9]
PAR<0: 1> [4, 9]
R49 68R
R50 68R
R51 68R
R52 68R
R53 68R
R54 68R
514256 U15 SO-26
U16 514256 SO-26
514256 U17 SO-26
U18 514256 SO-26
514256 U19 SO-26
U20 514256 SO-26
514256 U21 SO-26
U22 514256 SO-26
RA0 RA1 RA2 RA3 RA4 RA5 RA6 RA7 RA8
N.C. WE CAS RAS OE
D3 D2 D1 D0
D0 D1 D2 D3
5 N/C
N/C 5
41256 U23
41256 U24
41256 U25
41256 U26
WE A8 A7 A6 A5 A4 A3 A2 A1 A0 RAS CAS
O I
NOTE 1
ESX_48

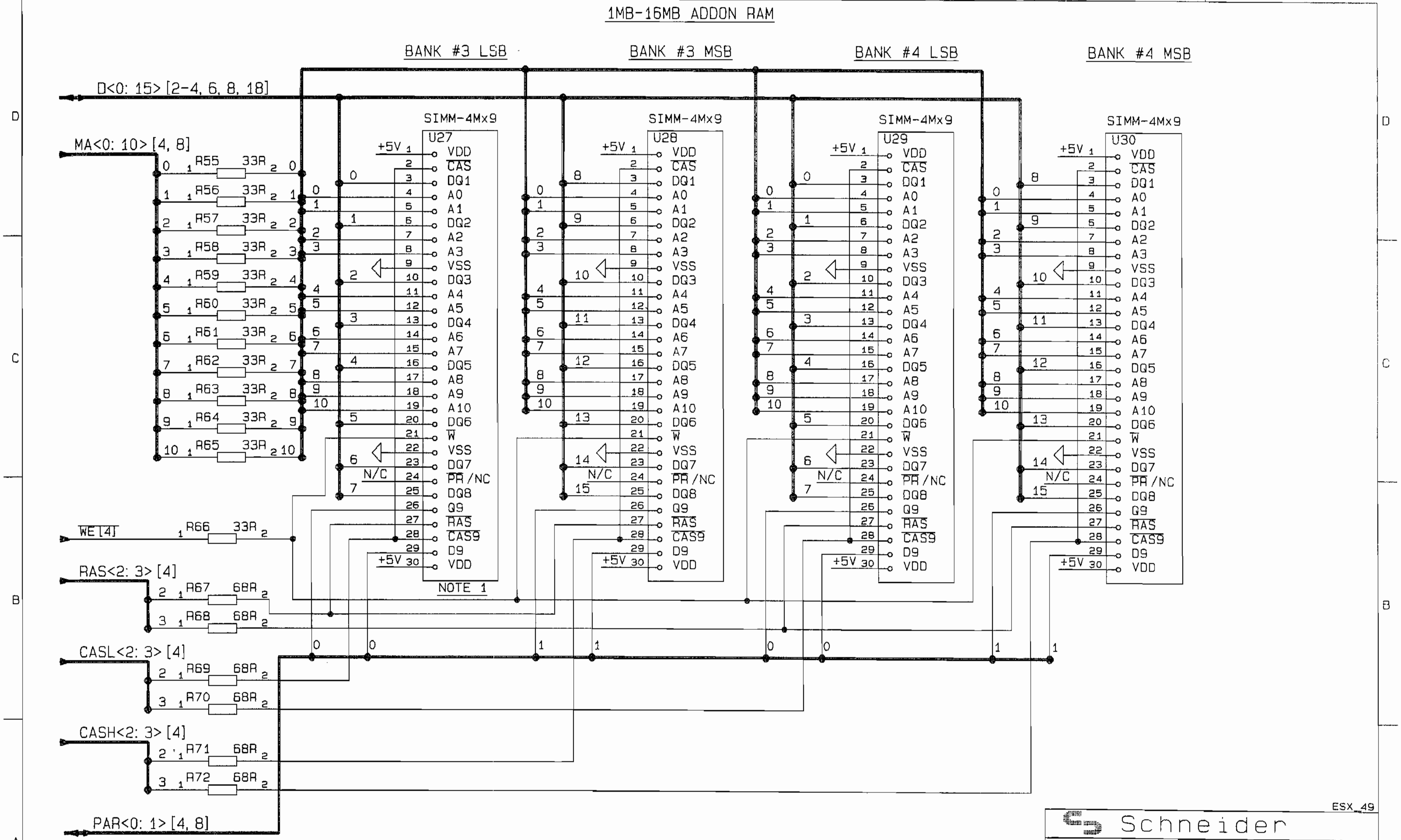
NOTES: 1) U23 .. U26 NORMALLY NOT ASSEMBLED

1 MB RAM

Schneider

DRAWN BY: H. ULLRICH	TITLE: SCHEMATIC SINGLEBOARD I SX		
APPROVED:			
USED ON: DESKOTP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 11-23-90		SHEET: 8 of 25	

]


1MB-16MB ADDON RAM
BANK #3 LSB
BANK #3 MSB
BANK #4 LSB
BANK #4 MSB
D<0: 15> [2-4, 6, 8, 18]
MA<0: 10> [4, 8]
WE [4]
RAS<2: 3> [4]
CASL<2: 3> [4]
CASH<2: 3> [4]
PAR<0: 1> [4, 8]
R55 33R
R56 33R
R57 33R
R58 33R
R59 33R
R60 33R
R61 33R
R62 33R
R63 33R
R64 33R
R65 33R
R66 33R
R67 68R
R68 68R
R69 68R
R70 68R
R71 68R
R72 68R
SIMM-4Mx9
U27
U28
U29
U30
+5V
VDD
CAS
DQ1
A0
A1
DQ2
A2
A3
VSS
DQ3
A4
A5
DQ4
A6
A7
DQ5
A8
A9
A10
DQ6
W
VSS
DQ7
PR/NC
DQ8
Q9
RAS
CAS9
D9
VDD
N/C
NOTE 1

NOTES: 1) 256Kx8(9) OR 1Mx8(9) OR 4Mx8(9)
SIMM MODULES

ESX_49

Schneider

DRAWN BY:
K. WINZEK
APPROVED:

TITLE:
SCHEMATIC
SINGLEBOARD I SX

USED ON:
DESKTOP SX
EURO SX

SIZE
A 3

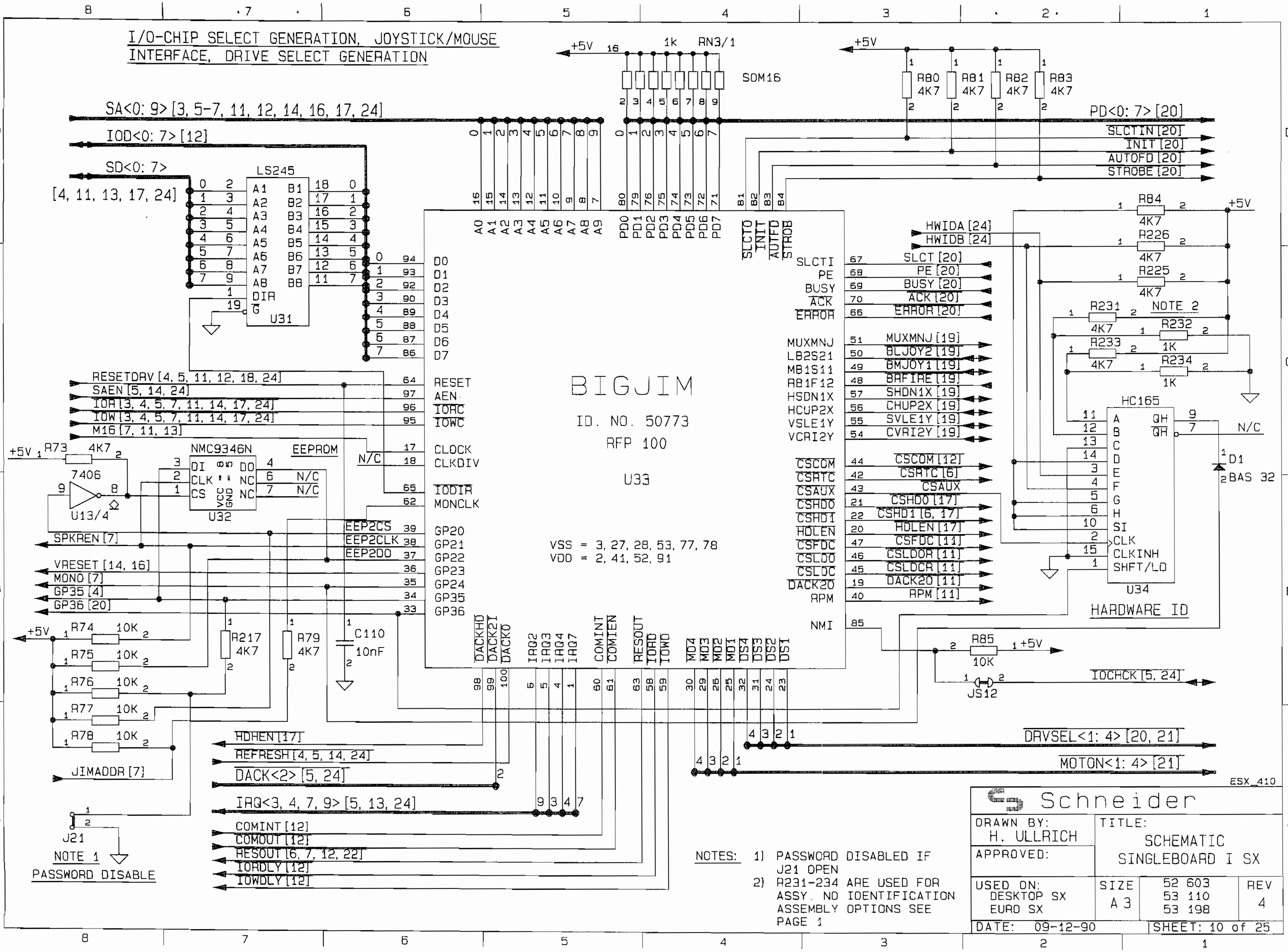
52 603
53 110
53 198

REV
4

DATE: 11-05-90

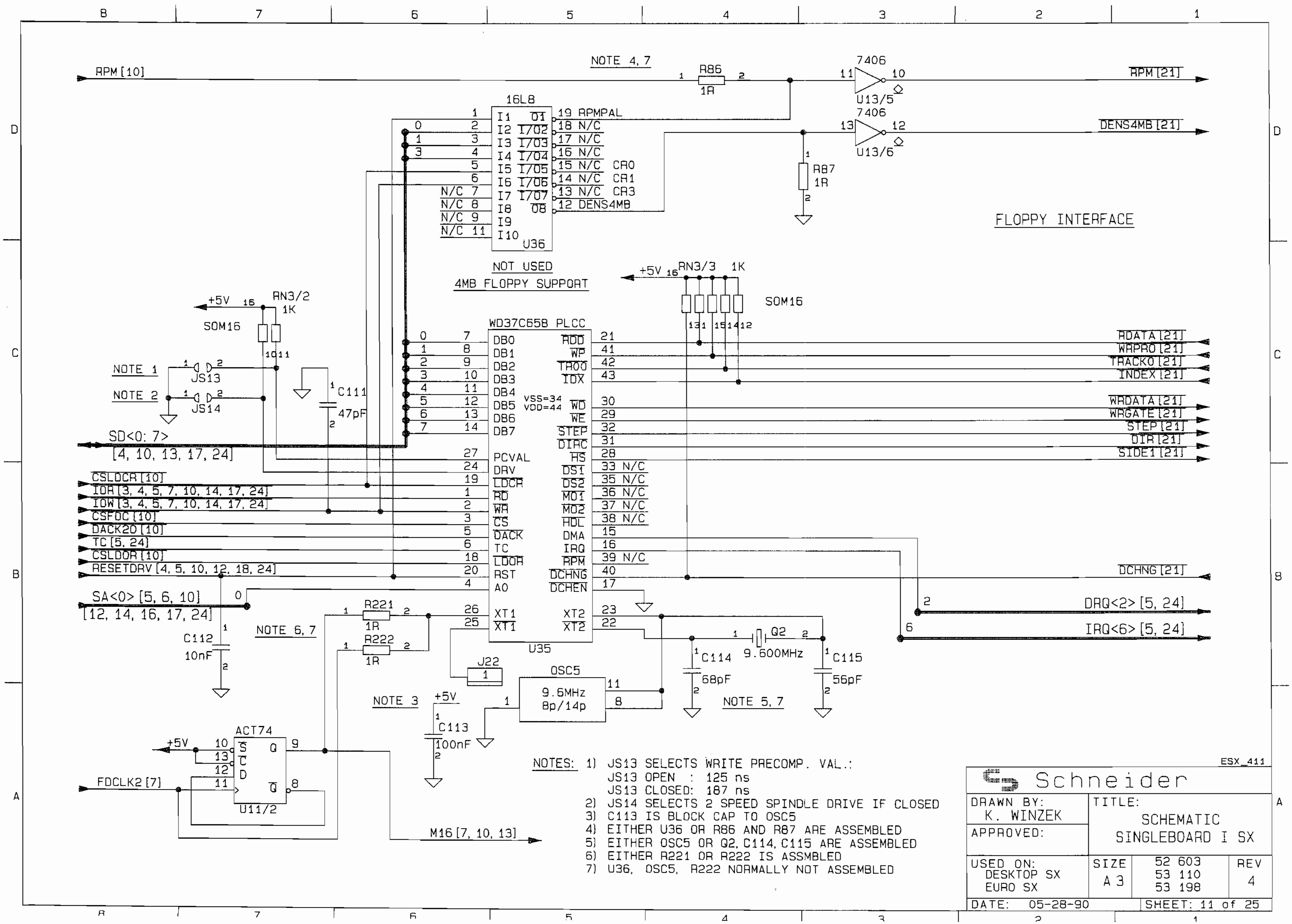
SHEET: 9 of 25

I/O-CHIP SELECT GENERATION, JOYSTICK/MOUSE INTERFACE, DRIVE SELECT GENERATION


SA<0: 9> [3, 5-7, 11, 12, 14, 16, 17, 24]
IOD<0: 7> [12]
SD<0: 7>
[4, 11, 13, 17, 24]
LS245
U31
A1 A2 A3 A4 A5 A6 A7 A8 DIR G
B1 B2 B3 B4 B5 B6 B7 B8
+5V 16 1k RN3/1
SOM16
RB0 4K7
RB1 4K7
RB2 4K7
RB3 4K7
PD<0: 7> [20]
SLCTIN [20]
INIT [20]
AUTOFD [20]
STROBE [20]
RESETDRV [4, 5, 11, 12, 18, 24]
SAEN [5, 14, 24]
IOR [3, 4, 5, 7, 11, 14, 17, 24]
IOW [3, 4, 5, 7, 11, 14, 17, 24]
M16 [7, 11, 13]
+5V R73 4K7
7406
U13/4
NMC9346N
EEPROM
DI DO CLK NC CS NC VCC GND
U32
N/C
SPKREN [7]
VRESET [14, 16]
MONO [7]
GP35 [4]
GP36 [20]
+5V
R74 10K
R75 10K
R76 10K
R77 10K
R78 10K
R217 4K7
R79 4K7
C110 10nF
JIMADDR [7]
J21
NOTE 1
PASSWORD DISABLE
BIGJIM
ID. NO. 50773
RFP 100
U33
VSS = 3, 27, 28, 53, 77, 78
VDD = 2, 41, 52, 91
D0 D1 D2 D3 D4 D5 D6 D7
RESET AEN IORC IOWC
CLOCK CLKDIV
IODIR MONCLK
EEP2CS EEP2CLK EEP2DO
GP20 GP21 GP22 GP23 GP24 GP35 GP36
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9
PD0 PD1 PD2 PD3 PD4 PD5 PD6 PD7
SLCTO INIT AUTFD STROB
SLCTI PE BUSY ACK ERROR
MUXMNJ LB2S21 MB1S11 RB1F12 HSDN1X HCUP2X VSLE1Y VCRI2Y
CSCOM CSRTC CSAUX CSHD0 CSHD1 HDLEN CSFDC CSLDOR CSLDCR DACK20 RPM
NMI
DACKHD DACK2I DACK0
IRQ2 IRQ3 IRQ4 IRQ7
COMINT COMIEN
RESOUT IORD IOWD
MD4 MD3 MD2 MD1 DS4 DS3 DS2 DS1
HWIDA [24]
HWIDB [24]
SLCT [20]
PE [20]
BUSY [20]
ACK [20]
ERROR [20]
MUXMNJ [19]
BLJOY2 [19]
BMJOY1 [19]
BRFIRE [19]
SHDN1X [19]
CHUP2X [19]
SVLE1Y [19]
CVRI2Y [19]
CSCOM [12]
CSRTC [6]
CSAUX
CSHD0 [17]
CSHD1 [6, 17]
HDLEN [17]
CSFDC [11]
CSLDOR [11]
CSLDCR [11]
DACK20 [11]
RPM [11]
RB4 4K7
R226 4K7
R225 4K7
R231 4K7
R232 1K
R233 4K7
R234 1K
NOTE 2
+5V
HC165
A B C D E F G H SI CLK CLKINH SHFT/LD
QH
U34
HARDWARE ID
N/C
D1 BAS 32
R85 10K
+5V
JS12
IOCHCK [5, 24]
HDHEN [17]
REFRESH [4, 5, 14, 24]
DACK<2> [5, 24]
IRQ<3, 4, 7, 9> [5, 13, 24]
COMINT [12]
COMOUT [12]
RESOUT [6, 7, 12, 22]
IORDLY [12]
IOWDLY [12]
DRVSEL<1: 4> [20, 21]
MOTON<1: 4> [21]
ESX_410

NOTES:
1) PASSWORD DISABLED IF J21 OPEN
2) R231-234 ARE USED FOR ASSY. NO IDENTIFICATION ASSEMBLY OPTIONS SEE PAGE 1

Schneider		
DRAWN BY: H. ULLRICH	TITLE: SCHEMATIC SINGLEBOARD I SX	
APPROVED:		
USED ON: DESKTOP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 09-12-90		SHEET: 10 of 25

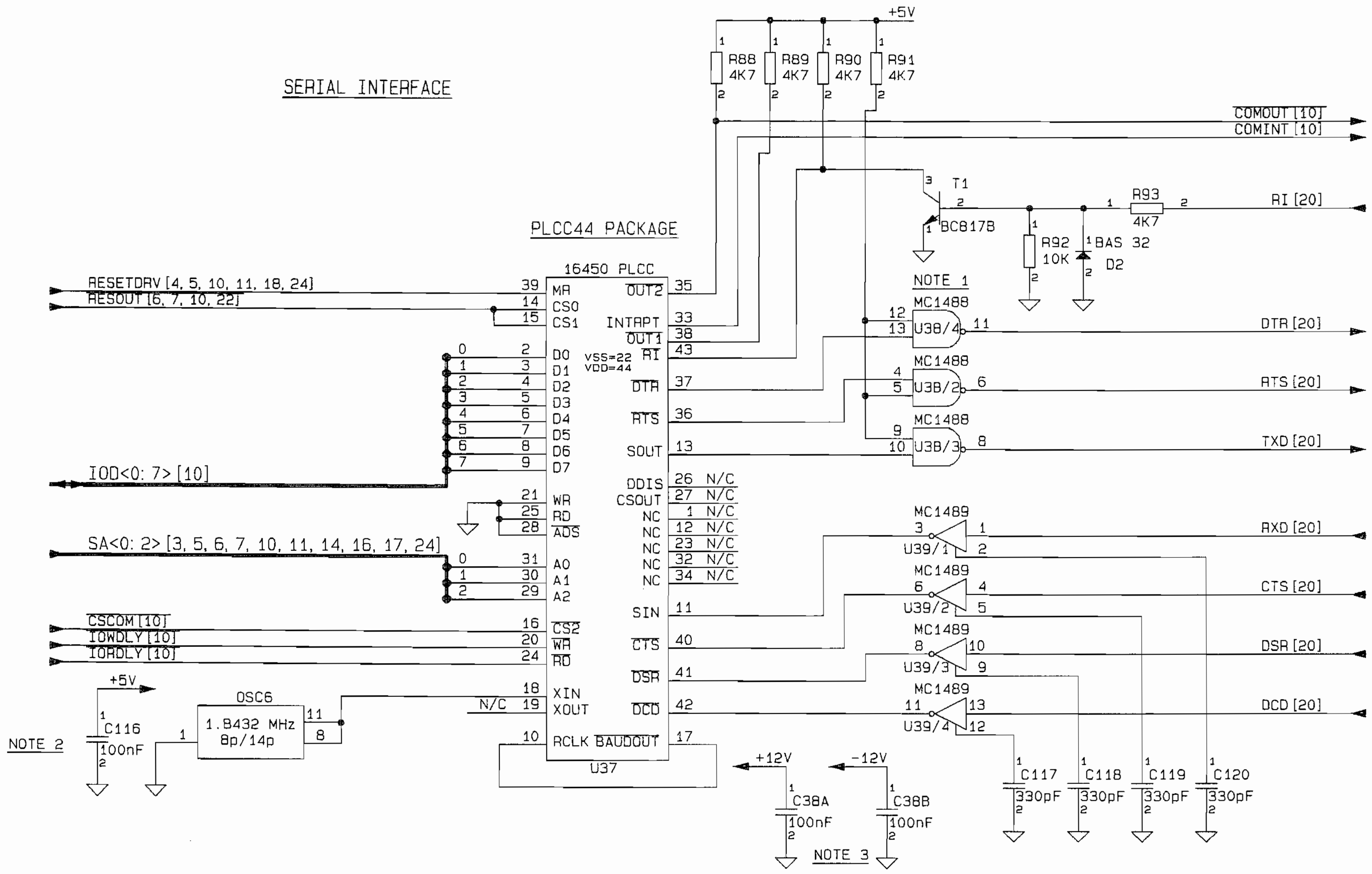

FLOPPY INTERFACE
RPM [10]
NOTE 4, 7
R86 1R
7406 U13/5
RPM [21]
7406 U13/6
DENS4MB [21]
R87 1R
16L8
I1 O1 19 RPMPAL
I2 I/O2 18 N/C
I3 I/O3 17 N/C
I4 I/O4 16 N/C
I5 I/O5 15 N/C CR0
I6 I/O6 14 N/C CR1
I7 I/O7 13 N/C CR3
N/C 8 I8 O8 12 DENS4MB
N/C 9 I9
N/C 11 I10
U36
NOT USED
4MB FLOPPY SUPPORT
+5V 16 RN3/3 1K
SOM16
+5V 16 RN3/2 1K
SOM16
NOTE 1
JS13
NOTE 2
JS14
C111 47pF
SD<0: 7>
[4, 10, 13, 17, 24]
WD37C65B PLCC
DB0 DB1 DB2 DB3 DB4 DB5 DB6 DB7
VSS=34
VDD=44
PCVAL
DRV
LDCR
RD
WR
CS
DACK
TC
LDOR
RST
A0
XT1
XT1
RDD
WP
TR00
IDX
WD
WE
STEP
DIRC
HS
DS1 33 N/C
DS2 35 N/C
MO1 36 N/C
MO2 37 N/C
HDL 38 N/C
DMA
IRQ
RPM 39 N/C
DCHNG
DCHEN
XT2
XT2
U35
RDATA [21]
WRPRO [21]
TRACK0 [21]
INDEX [21]
WRDATA [21]
WRGATE [21]
STEP [21]
DIR [21]
SIDE1 [21]
DCHNG [21]
DRQ<2> [5, 24]
IRQ<6> [5, 24]
CSLDCR [10]
IOR [3, 4, 5, 7, 10, 14, 17, 24]
IOW [3, 4, 5, 7, 10, 14, 17, 24]
CSFDC [10]
DACK2O [10]
TC [5, 24]
CSLDOR [10]
RESETDRV [4, 5, 10, 12, 18, 24]
SA<0> [5, 6, 10]
[12, 14, 16, 17, 24]
C112 10nF
NOTE 6, 7
R221 1R
R222 1R
J22
OSC5
9.6MHz
8p/14p
NOTE 3
+5V
C113 100nF
Q2 9.600MHz
C114 68pF
C115 56pF
NOTE 5, 7
ACT74
U11/2
+5V
FDCLK2 [7]
M16 [7, 10, 13]
ESX_411

NOTES:
1) JS13 SELECTS WRITE PRECOMP. VAL.:
JS13 OPEN : 125 ns
JS13 CLOSED: 187 ns
2) JS14 SELECTS 2 SPEED SPINDLE DRIVE IF CLOSED
3) C113 IS BLOCK CAP TO OSC5
4) EITHER U36 OR R86 AND R87 ARE ASSEMBLED
5) EITHER OSC5 OR Q2, C114, C115 ARE ASSEMBLED
6) EITHER R221 OR R222 IS ASSMBLED
7) U36, OSC5, R222 NORMALLY NOT ASSEMBLED

Schneider

DRAWN BY: K. WINZEK	TITLE: SCHEMATIC SINGLEBOARD I SX		
APPROVED:			
USED ON: DESKTOP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 05-28-90		SHEET: 11 of 25	

SERIAL INTERFACE



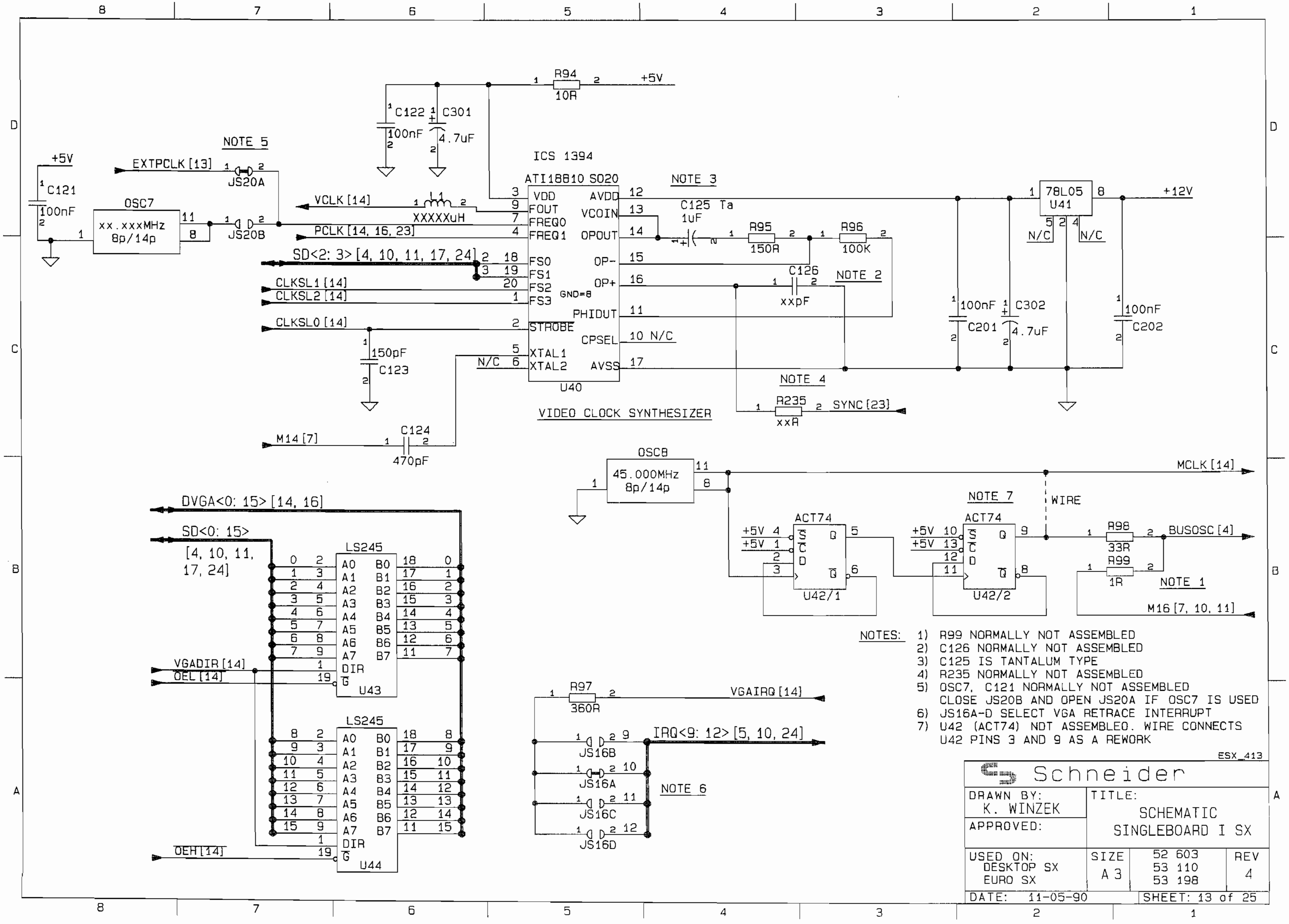
PLCC44 PACKAGE
16450 PLCC
U37
+5V
R88 4K7
R89 4K7
R90 4K7
R91 4K7
COMOUT [10]
COMINT [10]
T1
BC817B
R93 4K7
RI [20]
R92 10K
BAS 32
D2
NOTE 1
MC1488
U38/4
DTR [20]
U38/2
RTS [20]
U38/3
TXD [20]
MC1489
U39/1
RXD [20]
U39/2
CTS [20]
U39/3
DSR [20]
U39/4
DCD [20]
C117 330pF
C118 330pF
C119 330pF
C120 330pF
+12V
-12V
C38A 100nF
C38B 100nF
NOTE 3
RESETDRV [4, 5, 10, 11, 18, 24]
RESOUT [6, 7, 10, 22]
IOD<0: 7> [10]
SA<0: 2> [3, 5, 6, 7, 10, 11, 14, 16, 17, 24]
CSCOM [10]
IOWDLY [10]
IORDLY [10]
+5V
C116 100nF
NOTE 2
OSC6
1.8432 MHz
8p/14p
N/C
39 MR
14 CS0
15 CS1
2 D0
3 D1
4 D2
5 D3
6 D4
7 D5
8 D6
9 D7
21 WR
25 RD
28 ADS
31 A0
30 A1
29 A2
16 CS2
20 WR
24 RD
18 XIN
19 XOUT
10 RCLK
VSS=22
VDD=44
OUT2 35
INTRPT 33
OUT1 38
RI 43
DTR 37
RTS 36
SOUT 13
DDIS 26 N/C
CSOUT 27 N/C
NC 1 N/C
NC 12 N/C
NC 23 N/C
NC 32 N/C
NC 34 N/C
SIN 11
CTS 40
DSR 41
DCD 42
BAUDOUT 17

NOTES:
1) U38 HAS SPECIAL POWER PINS:
+12V = PIN 14
-12V = PIN 1
GND = PIN 7
2) C116 IS BLOCK CAP TO OSC6
3) C38A, C38B ARE BLOCK CAPS FOR U38

ESX_412

Schneider

DRAWN BY: K. WINZEK	TITLE: SCHEMATIC SINGLEBOARD I SX		
APPROVED:			
USED ON: DESKTOP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 05-08-90		SHEET: 12 of 25	

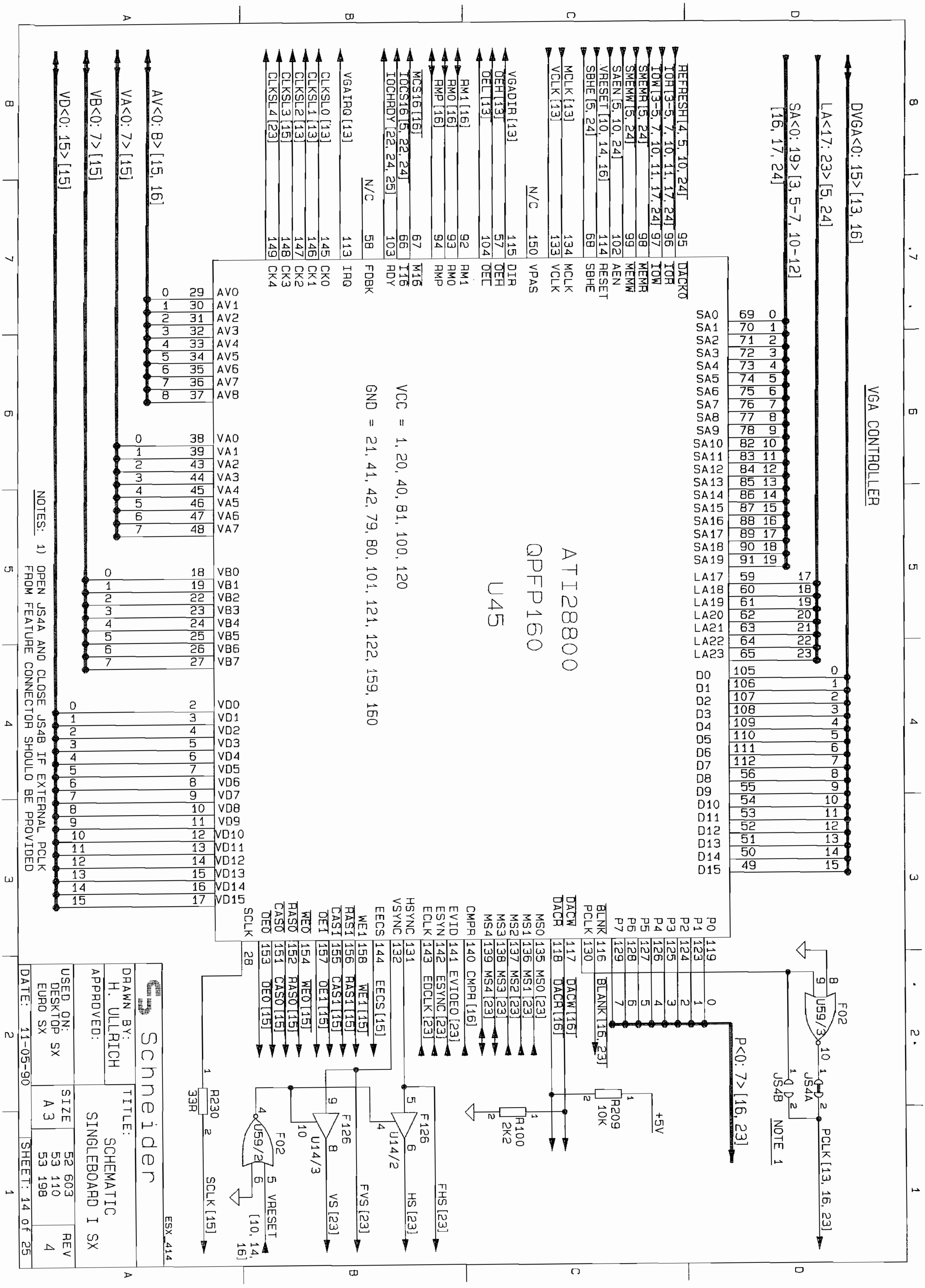

VIDEO CLOCK SYNTHESIZER
ICS 1394
ATI18810 S020
U40
VDD
FOUT
FREQ0
FREQ1
FS0
FS1
FS2
FS3
GND=8
STROBE
XTAL1
XTAL2
AVDD
VCOIN
OPOUT
OP-
OP+
PHIDUT
CPSEL
AVSS
R94 10R
+5V
C122 100nF
C301 4.7uF
C121 100nF
OSC7 xx.xxxMHz 8p/14p
EXTPCLK [13]
JS20A
JS20B
NOTE 5
VCLK [14]
L1 XXXXXuH
PCLK [14, 16, 23]
SD<2: 3> [4, 10, 11, 17, 24]
CLKSL1 [14]
CLKSL2 [14]
CLKSL0 [14]
C123 150pF
N/C
M14 [7]
C124 470pF
NOTE 3
C125 Ta 1uF
R95 150R
R96 100K
C126 xxpF
NOTE 2
10 N/C
NOTE 4
R235 xxR
SYNC [23]
78L05 U41
N/C
+12V
C201 100nF
C302 4.7uF
C202 100nF
OSC8 45.000MHz 8p/14p
MCLK [14]
WIRE
NOTE 7
ACT74
U42/1
U42/2
+5V
R98 33R
R99 1R
BUSOSC [4]
NOTE 1
M16 [7, 10, 11]
DVGA<0: 15> [14, 16]
SD<0: 15> [4, 10, 11, 17, 24]
LS245
U43
U44
A0 A1 A2 A3 A4 A5 A6 A7
B0 B1 B2 B3 B4 B5 B6 B7
DIR
G
VGADIR [14]
OEL [14]
OEH [14]
R97 360R
VGAIRQ [14]
IRQ<9: 12> [5, 10, 24]
JS16B
JS16A
JS16C
JS16D
NOTE 6

NOTES:
1) R99 NORMALLY NOT ASSEMBLED
2) C126 NORMALLY NOT ASSEMBLED
3) C125 IS TANTALUM TYPE
4) R235 NORMALLY NOT ASSEMBLED
5) OSC7, C121 NORMALLY NOT ASSEMBLED
CLOSE JS20B AND OPEN JS20A IF OSC7 IS USED
6) JS16A-D SELECT VGA RETRACE INTERRUPT
7) U42 (ACT74) NOT ASSEMBLED. WIRE CONNECTS
U42 PINS 3 AND 9 AS A REWORK

ESX_413

Schneider

DRAWN BY: K. WINZEK	TITLE: SCHEMATIC SINGLEBOARD I SX		
APPROVED:			
USED ON: DESKTOP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 11-05-90		SHEET: 13 of 25	


VGA CONTROLLER
ATI28800
QPFP160
U45
VCC = 1, 20, 40, 81, 100, 120
GND = 21, 41, 42, 79, 80, 101, 121, 122, 159, 160
DVGA<0:15>[13,16]
LA<17:23>[5,24]
SA<0:19>[3,5-7,10-12] [16,17,24]
AV<0:8>[15,16]
VA<0:7>[15]
VB<0:7>[15]
VD<0:15>[15]
P<0:7>[16,23]
REFRESH[4,5,10,24] 95 DACK0
IOR[3-5,7,10,11,17,24] 96 IOR
IOW[3-5,7,10,11,17,24] 97 IOW
SMEMR[5,24] 98 MEMR
SMEMW[5,24] 99 MEMW
SAEN[5,10,24] 102 AEN
VRESET[10,14,16] 114 RESET
SBHE[5,24] 68 SBHE
MCLK[13] 134 MCLK
VCLK[13] 133 VCLK
N/C 150 VPAS
VGADIR[13] 115 DIR
OEH[13] 57 OEH
OEL[13] 104 OEL
RM1[16] 92 RM1
RM0[16] 93 RM0
RMP[16] 94 RMP
MCS16[16] 67 M16
IOCS16[5,22,24] 66 I16
IOCHRDY[22,24,25] 103 RDY
N/C 58 FDBK
VGAIRQ[13] 113 IRQ
CLKSL0[13] 145 CK0
CLKSL1[13] 146 CK1
CLKSL2[13] 147 CK2
CLKSL3[15] 148 CK3
CLKSL4[23] 149 CK4
SA0–SA19 69–78, 82–91
LA17–LA23 59–65
D0–D15 105–112, 56–49
AV0–AV8 29–37
VA0–VA7 38, 39, 43–48
VB0–VB7 18, 19, 22–27
VD0–VD15 2–17
P0–P7 119, 123–129
BLNK 116 BLANK[16,23]
PCLK 130
DACW 117 DACW[16]
DACR 118 DACR[16]
MS0 135 MS0[23]
MS1 136 MS1[23]
MS2 137 MS2[23]
MS3 138 MS3[23]
MS4 139 MS4[23]
CMPR 140 CMPR[16]
EVID 141 EVIDEO[23]
ESYN 142 ESYNC[23]
ECLK 143 EDCLK[23]
HSYNC 131
VSYNC 132
EECS 144 EECS[15]
WE1 158 WE1[15]
RAS1 156 RAS1[15]
CAS1 155 CAS1[15]
OE1 157 OE1[15]
WE0 154 WE0[15]
RAS0 152 RAS0[15]
CAS0 151 CAS0[15]
OE0 153 OE0[15]
SCLK 28
R230 33R
SCLK[15]
U59/2 F02
VRESET [10,14,16]
U14/3 F126 VS[23]
FVS[23]
U14/2 F126 HS[23]
FHS[23]
R100 2K2
R209 10K
+5V
U59/3 F02
JS4A
JS4B
NOTE 1
PCLK[13,16,23]
ESX_414

NOTES: 1) OPEN JS4A AND CLOSE JS4B IF EXTERNAL PCLK FROM FEATURE CONNECTOR SHOULD BE PROVIDED

Schneider

DRAWN BY: H. ULLRICH

APPROVED:

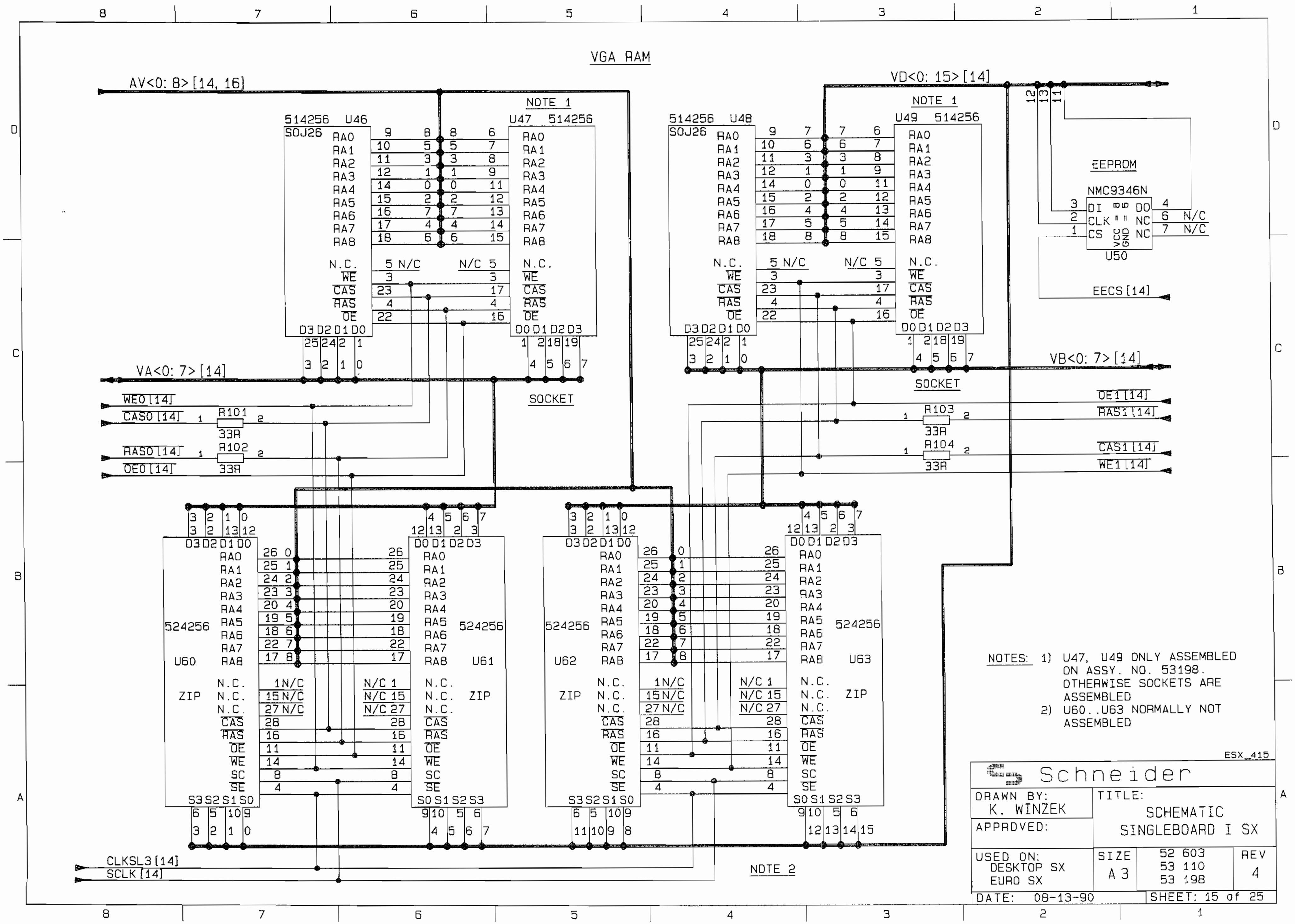
TITLE: SCHEMATIC SINGLEBOARD I SX

USED ON: DESKTOP SX EURO SX

SIZE		REV
A 3	52 603 53 110 53 198	4

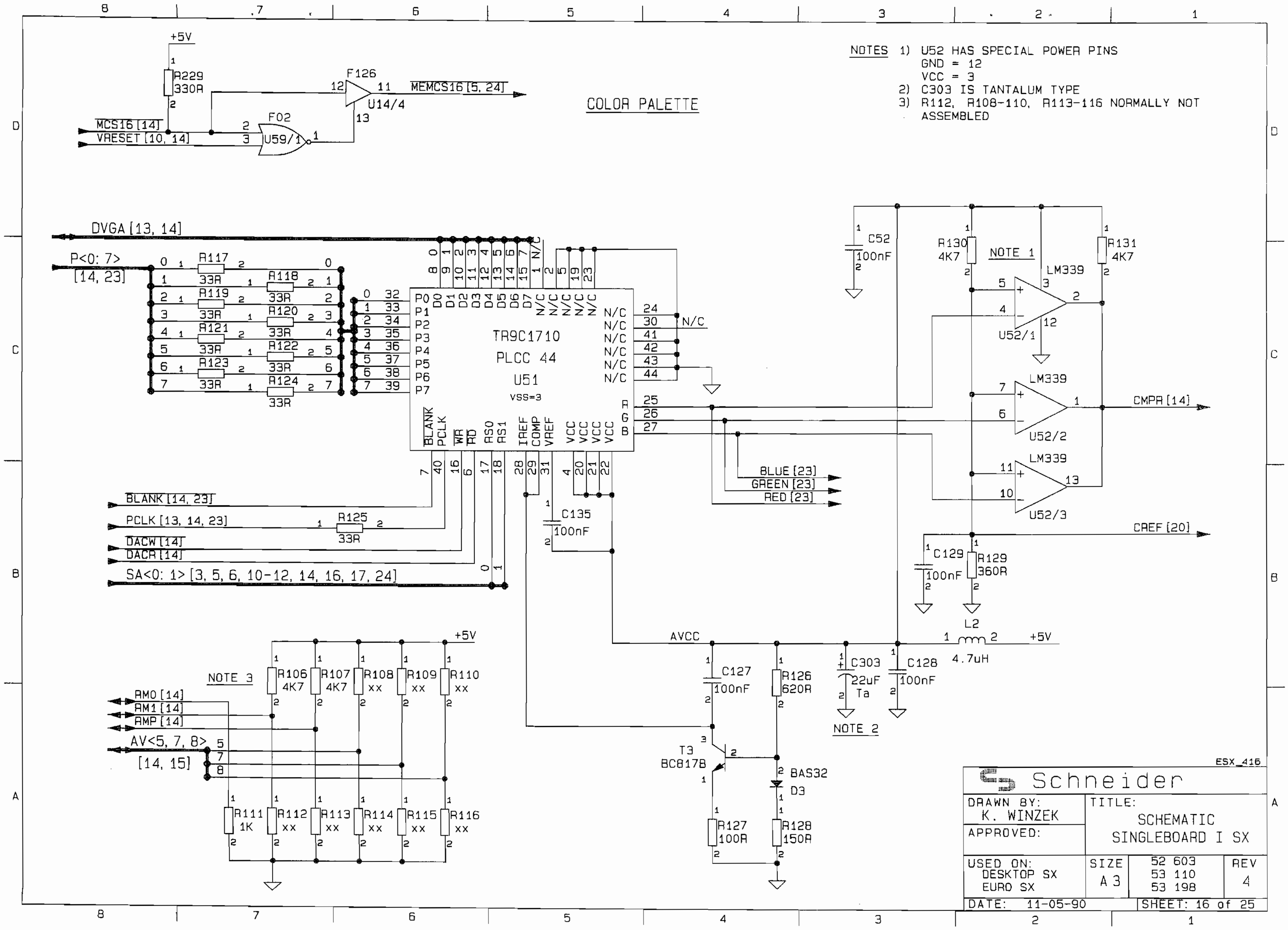
DATE: 11-05-90

SHEET: 14 of 25


VGA RAM
AV<0: 8>[14, 16]
VD<0: 15>[14]
VA<0: 7>[14]
VB<0: 7>[14]
NOTE 1
514256 U46
SOJ26
U47 514256
514256 U48
U49 514256
RA0
RA1
RA2
RA3
RA4
RA5
RA6
RA7
RA8
N.C.
WE
CAS
RAS
OE
D3 D2 D1 D0
D0 D1 D2 D3
SOCKET
WE0[14]
CAS0[14]
RAS0[14]
OE0[14]
R101
R102
R103
R104
33R
OE1[14]
RAS1[14]
CAS1[14]
WE1[14]
EEPROM
NMC9346N
DI
CLK
CS
DO
NC
VCC
GND
N/C
U50
EECS[14]
524256
U60
U61
U62
U63
ZIP
SC
SE
S3 S2 S1 S0
S0 S1 S2 S3
CLKSL3[14]
SCLK[14]
NOTE 2
ESX_415

NOTES:
1) U47, U49 ONLY ASSEMBLED ON ASSY. NO. 53198. OTHERWISE SOCKETS ARE ASSEMBLED
2) U60..U63 NORMALLY NOT ASSEMBLED

Schneider			
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC SINGLEBOARD I SX		
APPROVED:			
USED ON: DESKTOP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 08-13-90	SHEET: 15 of 25		


+5V
R229
330R
F126
U14/4
MEMCS16 [5, 24]
F02
U59/1
MCS16 [14]
VRESET [10, 14]
DVGA [13, 14]
P<0: 7>
[14, 23]
R117 33R
R118 33R
R119 33R
R120 33R
R121 33R
R122 33R
R123 33R
R124 33R
TR9C1710
PLCC 44
U51
VSS=3
P0 P1 P2 P3 P4 P5 P6 P7
D0 D1 D2 D3 D4 D5 D6 D7
N/C
BLANK
PCLK
WR
RD
RS0
RS1
IREF
COMP
VREF
VCC
R
G
B
BLANK [14, 23]
PCLK [13, 14, 23]
R125 33R
DACW [14]
DACR [14]
SA<0: 1> [3, 5, 6, 10-12, 14, 16, 17, 24]
C135 100nF
BLUE [23]
GREEN [23]
RED [23]
C52 100nF
R130 4K7
NOTE 1
R131 4K7
LM339
U52/1
U52/2
U52/3
CMPR [14]
CREF [20]
C129 100nF
R129 360R
L2 4.7uH
AVCC
C127 100nF
R126 620R
C303 22uF Ta
C128 100nF
NOTE 2
T3 BC817B
BAS32 D3
R127 100R
R128 150R
NOTE 3
R106 4K7
R107 4K7
R108 xx
R109 xx
R110 xx
AM0 [14]
AM1 [14]
AMP [14]
AV<5, 7, 8>
[14, 15]
R111 1K
R112 xx
R113 xx
R114 xx
R115 xx
R116 xx

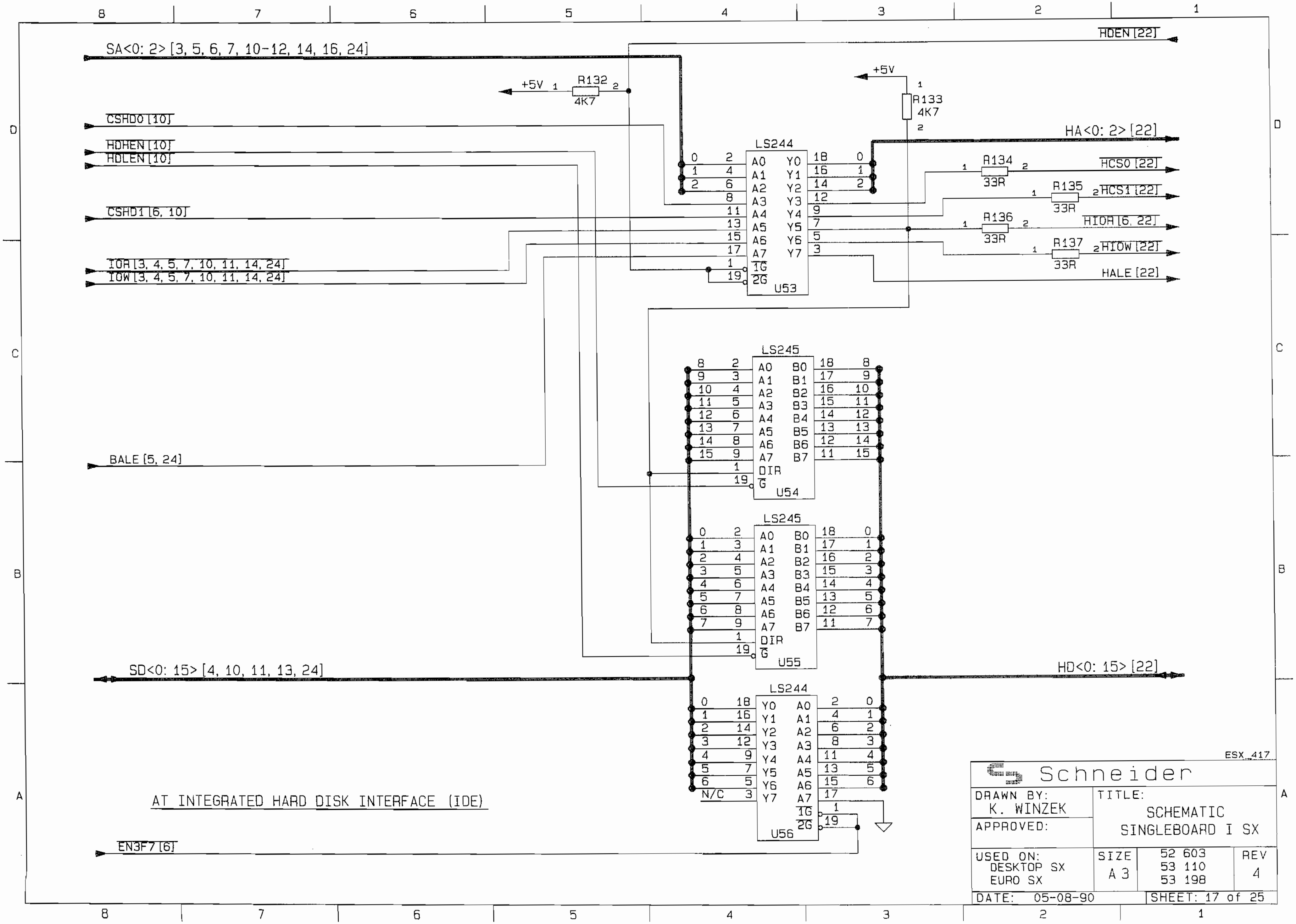
COLOR PALETTE

NOTES
1) U52 HAS SPECIAL POWER PINS
GND = 12
VCC = 3
2) C303 IS TANTALUM TYPE
3) R112, R108-110, R113-116 NORMALLY NOT ASSEMBLED

ESX_416

Schneider

DRAWN BY: K. WINZEK	TITLE: SCHEMATIC SINGLEBOARD I SX		
APPROVED:			
USED ON: DESKTOP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 11-05-90		SHEET: 16 of 25	


SA<0: 2> [3, 5, 6, 7, 10-12, 14, 16, 24]
CSHD0 [10]
HDHEN [10]
HDLEN [10]
CSHD1 [6, 10]
IOR [3, 4, 5, 7, 10, 11, 14, 24]
IOW [3, 4, 5, 7, 10, 11, 14, 24]
BALE [5, 24]
SD<0: 15> [4, 10, 11, 13, 24]
EN3F7 [6]
+5V
R132
4K7
R133
4K7
HDEN [22]
HA<0: 2> [22]
R134
33R
HCS0 [22]
R135
33R
HCS1 [22]
R136
33R
HIOR [6, 22]
R137
33R
HIOW [22]
HALE [22]
LS244
U53
LS245
U54
LS245
U55
LS244
U56
DIR
G
1G
2G
N/C
HD<0: 15> [22]
ESX_417

AT INTEGRATED HARD DISK INTERFACE (IDE)

Schneider

DRAWN BY:
K. WINZEK
APPROVED:

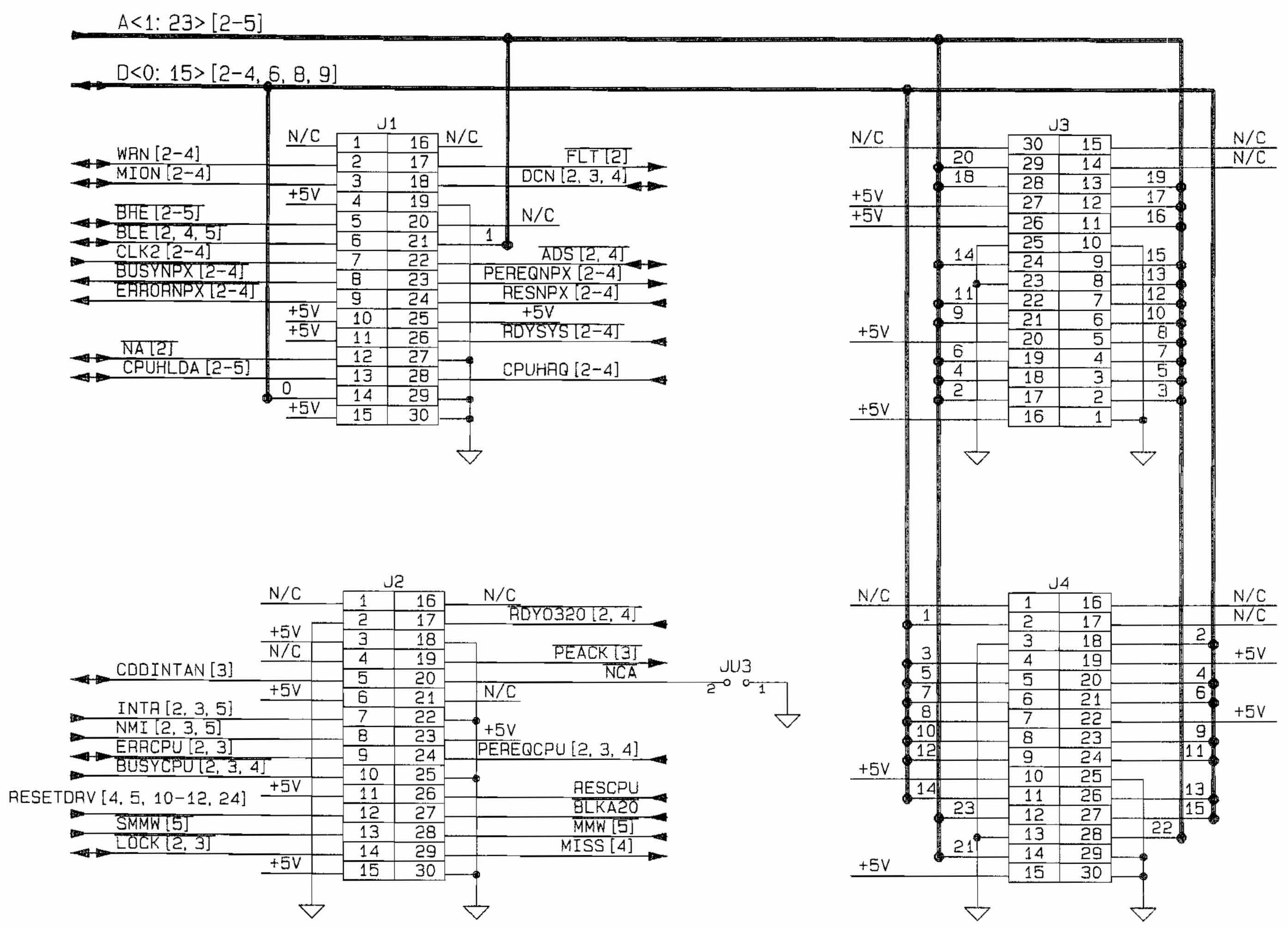
TITLE:
SCHEMATIC
SINGLEBOARD I SX

USED ON:
DESKTOP SX
EURO SX

SIZE		REV
A 3	52 603 53 110 53 198	4

DATE: 05-08-90

SHEET: 17 of 25

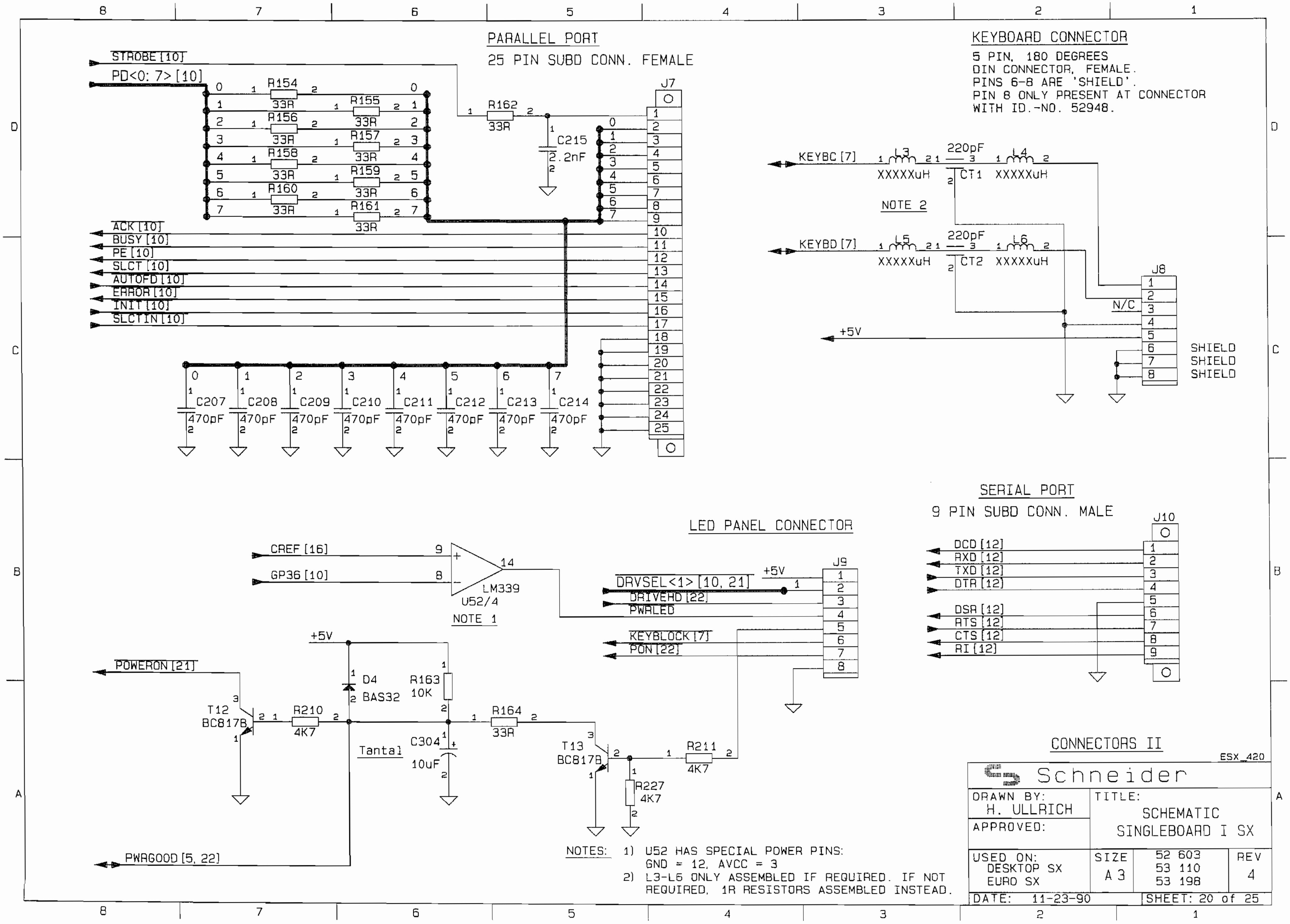

A<1: 23> [2-5]
D<0: 15> [2-4, 6, 8, 9]
J1
WRN [2-4]
MION [2-4]
BHE [2-5]
BLE [2, 4, 5]
CLK2 [2-4]
BUSYNPX [2-4]
ERRORNPX [2-4]
NA [2]
CPUHLDA [2-5]
N/C
+5V
0
FLT [2]
DCN [2, 3, 4]
ADS [2, 4]
PEREQNPX [2-4]
RESNPX [2-4]
RDYSYS [2-4]
CPUHRQ [2-4]
J2
CDDINTAN [3]
INTA [2, 3, 5]
NMI [2, 3, 5]
ERRCPU [2, 3]
BUSYCPU [2, 3, 4]
RESETDRV [4, 5, 10-12, 24]
SMMW [5]
LOCK [2, 3]
RDYO320 [2, 4]
PEACK [3]
NCA
PEREQCPU [2, 3, 4]
RESCPU
BLKA20
MMW [5]
MISS [4]
JU3
J3
J4

ICE CONNECTOR

ESX_418

Schneider

DRAWN BY: K. WINZEK	TITLE: SCHEMATIC SINGLEBOARD I SX		
APPROVED:			
USED ON: DESKTOP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 06-18-90		SHEET: 18 of 25	


PARALLEL PORT
25 PIN SUBD CONN. FEMALE
STROBE [10]
PD<0: 7> [10]
R154 33R
R155 33R
R156 33R
R157 33R
R158 33R
R159 33R
R160 33R
R161 33R
R162 33R
C215 2.2nF
J7
ACK [10]
BUSY [10]
PE [10]
SLCT [10]
AUTOFD [10]
ERROR [10]
INIT [10]
SLCTIN [10]
C207 470pF
C208 470pF
C209 470pF
C210 470pF
C211 470pF
C212 470pF
C213 470pF
C214 470pF
KEYBOARD CONNECTOR
KEYBC [7]
KEYBD [7]
L3 XXXXXuH
L4 XXXXXuH
L5 XXXXXuH
L6 XXXXXuH
220pF CT1
220pF CT2
NOTE 2
J8
N/C
+5V
SHIELD
SHIELD
SHIELD
SERIAL PORT
9 PIN SUBD CONN. MALE
J10
DCD [12]
RXD [12]
TXD [12]
DTR [12]
DSR [12]
RTS [12]
CTS [12]
RI [12]
LED PANEL CONNECTOR
J9
CREF [16]
GP36 [10]
LM339
U52/4
NOTE 1
DRVSEL<1> [10, 21]
DRIVEHD [22]
PWRLED
KEYBLOCK [7]
PON [22]
+5V
POWERON [21]
T12 BC817B
R210 4K7
D4 BAS32
R163 10K
Tantal
C304 10uF
R164 33R
T13 BC817B
R211 4K7
R227 4K7
PWRGOOD [5, 22]
ESX_420

KEYBOARD CONNECTOR

5 PIN, 180 DEGREES
DIN CONNECTOR, FEMALE.
PINS 6-8 ARE 'SHIELD'.
PIN 8 ONLY PRESENT AT CONNECTOR
WITH ID.-NO. 52948.

NOTES:
1) U52 HAS SPECIAL POWER PINS:
GND = 12, AVCC = 3
2) L3-L6 ONLY ASSEMBLED IF REQUIRED. IF NOT REQUIRED, 1R RESISTORS ASSEMBLED INSTEAD.

CONNECTORS II

Schneider

DRAWN BY:
H. ULLRICH
APPROVED:

TITLE:
SCHEMATIC
SINGLEBOARD I SX

USED ON:
DESKTOP SX
EURO SX

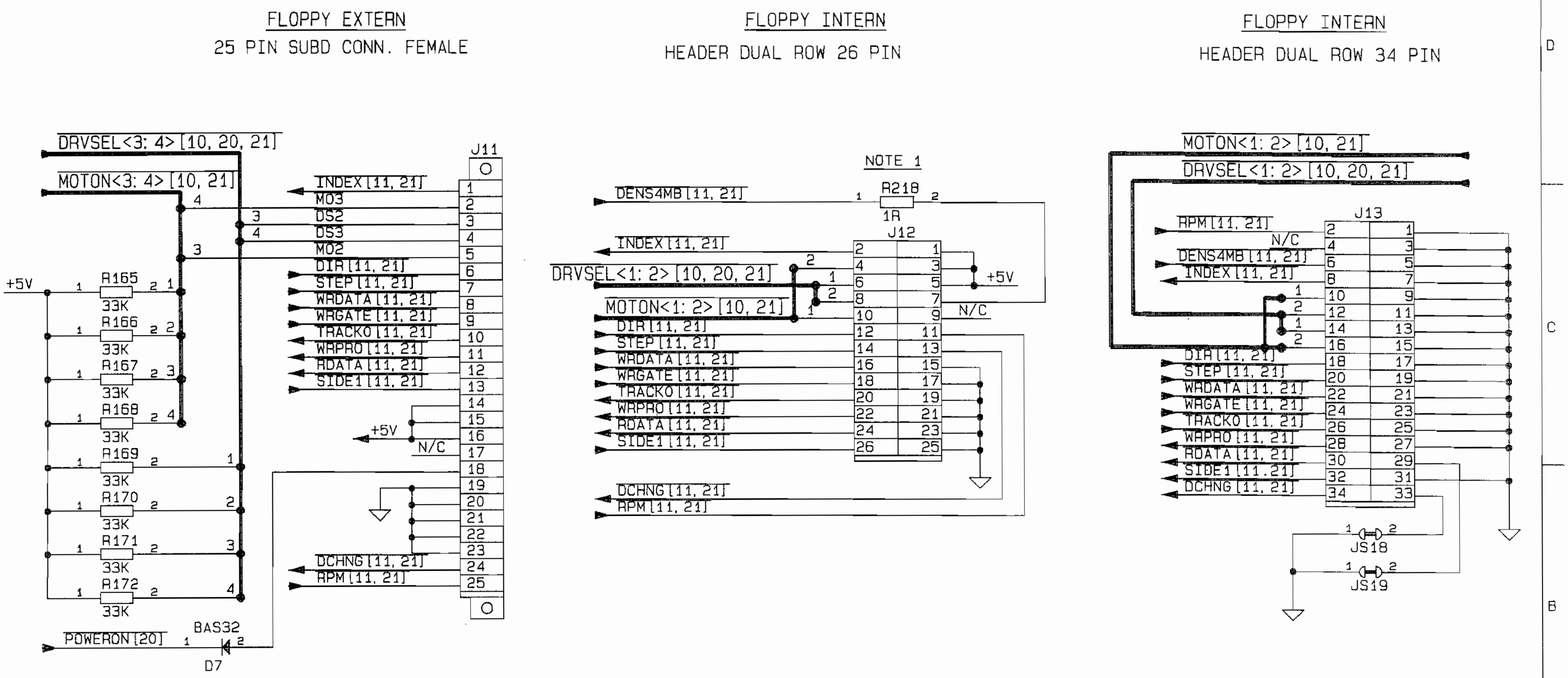
SIZE
A 3

52 603
53 110
53 198

REV
4

DATE: 11-23-90

SHEET: 20 of 25


FLOPPY EXTERN
25 PIN SUBD CONN. FEMALE
FLOPPY INTERN
HEADER DUAL ROW 26 PIN
FLOPPY INTERN
HEADER DUAL ROW 34 PIN
DRVSEL<3: 4> [10, 20, 21]
MOTON<3: 4> [10, 21]
+5V
R165 33K
R166 33K
R167 33K
R168 33K
R169 33K
R170 33K
R171 33K
R172 33K
POWERON [20]
BAS32
D7
J11
INDEX [11, 21]
MO3
DS2
DS3
MO2
DIR [11, 21]
STEP [11, 21]
WRDATA [11, 21]
WRGATE [11, 21]
TRACK0 [11, 21]
WRPRO [11, 21]
RDATA [11, 21]
SIDE1 [11, 21]
N/C
DCHNG [11, 21]
RPM [11, 21]
NOTE 1
R218
1R
J12
DENS4MB [11, 21]
DRVSEL<1: 2> [10, 20, 21]
MOTON<1: 2> [10, 21]
J13
JS18
JS19

CONNECTORS III

NOTES: 1) R218 NORMALLY NOT ASSEMBLED

ESX_421

Schneider

DRAWN BY:
K. WINZEK

APPROVED:

TITLE:
SCHEMATIC
SINGLEBOARD I SX

USED ON:
DESKTOP SX
EURO SX

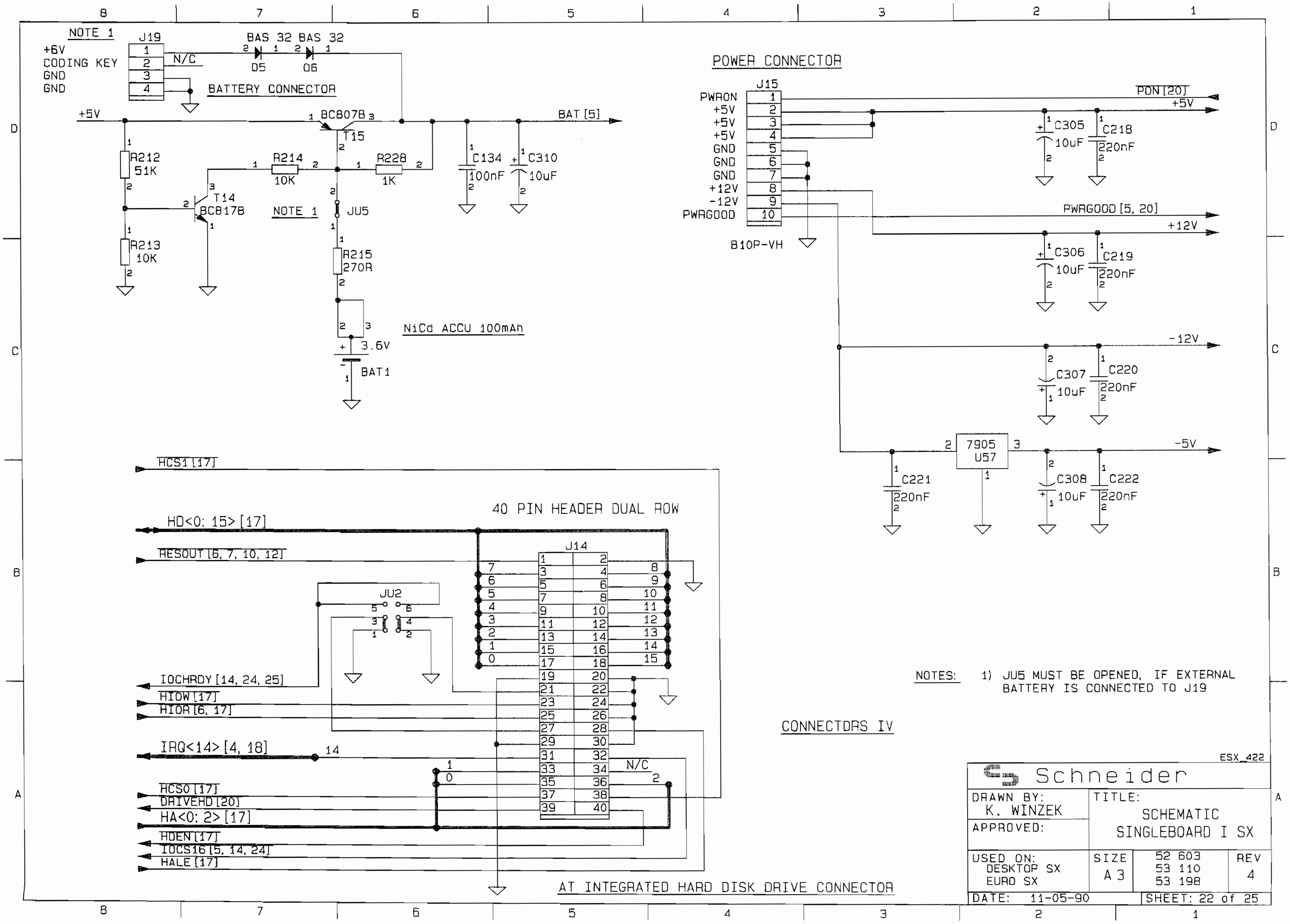
SIZE
A 3

52 603
53 110
53 198

REV
4

DATE: 06-28-90

SHEET: 21 of 25

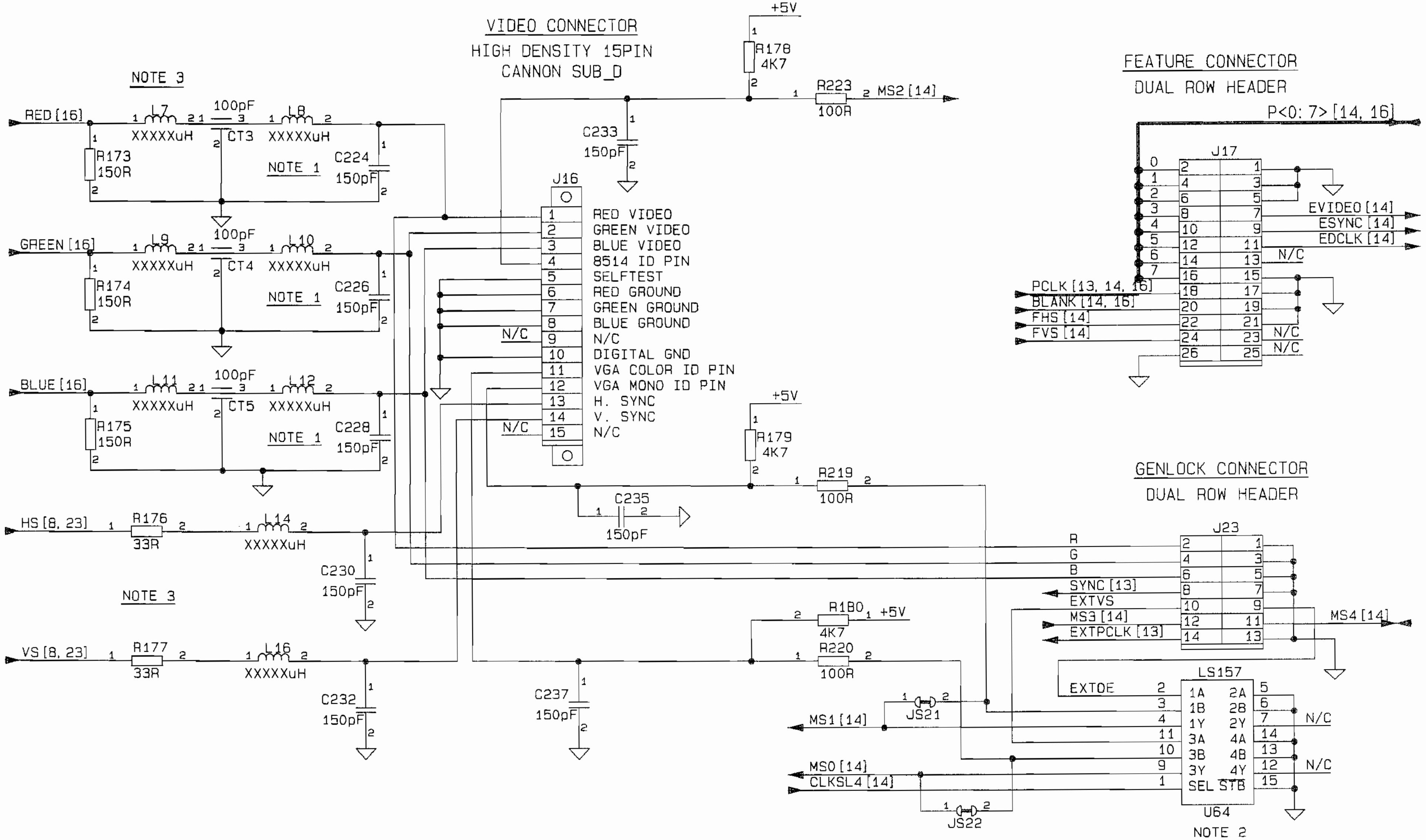

8
7
6
5
4
3
2
1
D
C
B
A
NOTE 1
J19
+6V
CODING KEY
GND
GND
1
2
3
4
N/C
BAS 32 BAS 32
D5
D6
BATTERY CONNECTOR
+5V
BC807B
T15
BAT [5]
R212
51K
R214
10K
R228
1K
C134
100nF
C310
10uF
T14
BC817B
NOTE 1
JU5
R213
10K
R215
270R
NiCd ACCU 100mAh
3.6V
BAT1
POWER CONNECTOR
J15
PWRON
+5V
+5V
+5V
GND
GND
GND
+12V
-12V
PWRGOOD
5
6
7
8
9
10
B10P-VH
PON [20]
+5V
C305
10uF
C218
220nF
PWRGOOD [5, 20]
+12V
C306
10uF
C219
220nF
-12V
C307
10uF
C220
220nF
7905
U57
-5V
C221
220nF
C308
10uF
C222
220nF
HCS1 [17]
40 PIN HEADER DUAL ROW
HD<0: 15> [17]
J14
RESOUT [6, 7, 10, 12]
JU2
IOCHRDY [14, 24, 25]
HIOW [17]
HIOR [6, 17]
IRQ<14> [4, 18]
14
N/C
HCS0 [17]
DRIVEHD [20]
HA<0: 2> [17]
HDEN [17]
IOCS16 [5, 14, 24]
HALE [17]
AT INTEGRATED HARD DISK DRIVE CONNECTOR
CONNECTORS IV

NOTES: 1) JU5 MUST BE OPENED, IF EXTERNAL BATTERY IS CONNECTED TO J19

ESX_422

Schneider

DRAWN BY: K. WINZEK	TITLE: SCHEMATIC SINGLEBOARD I SX		
APPROVED:			
USED ON: DESKTOP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 11-05-90		SHEET: 22 of 25	


VIDEO CONNECTOR
HIGH DENSITY 15PIN
CANNON SUB_D
J16
1 RED VIDEO
2 GREEN VIDEO
3 BLUE VIDEO
4 8514 ID PIN
5 SELFTEST
6 RED GROUND
7 GREEN GROUND
8 BLUE GROUND
9 N/C
10 DIGITAL GND
11 VGA COLOR ID PIN
12 VGA MONO ID PIN
13 H. SYNC
14 V. SYNC
15 N/C
NOTE 3
RED [16]
GREEN [16]
BLUE [16]
HS [8, 23]
VS [8, 23]
R173 150R
R174 150R
R175 150R
L7 XXXXXuH
L8 XXXXXuH
L9 XXXXXuH
L10 XXXXXuH
L11 XXXXXuH
L12 XXXXXuH
L14 XXXXXuH
L16 XXXXXuH
CT3 100pF
CT4 100pF
CT5 100pF
NOTE 1
C224 150pF
C226 150pF
C228 150pF
R176 33R
R177 33R
C230 150pF
C232 150pF
C233 150pF
C235 150pF
C237 150pF
+5V
R178 4K7
R179 4K7
R180 4K7
R223 100R
R219 100R
R220 100R
MS2 [14]
FEATURE CONNECTOR
DUAL ROW HEADER
P<0: 7> [14, 16]
J17
EVIDEO [14]
ESYNC [14]
EDCLK [14]
PCLK [13, 14, 16]
BLANK [14, 16]
FHS [14]
FVS [14]
N/C
GENLOCK CONNECTOR
DUAL ROW HEADER
J23
R
G
B
SYNC [13]
EXTVS
MS3 [14]
EXTPCLK [13]
MS4 [14]
EXTOE
LS157
U64
NOTE 2
1A 1B 1Y 3A 3B 3Y SEL
2A 2B 2Y 4A 4B 4Y STB
JS21
JS22
MS1 [14]
MS0 [14]
CLKSL4 [14]
ESX_423

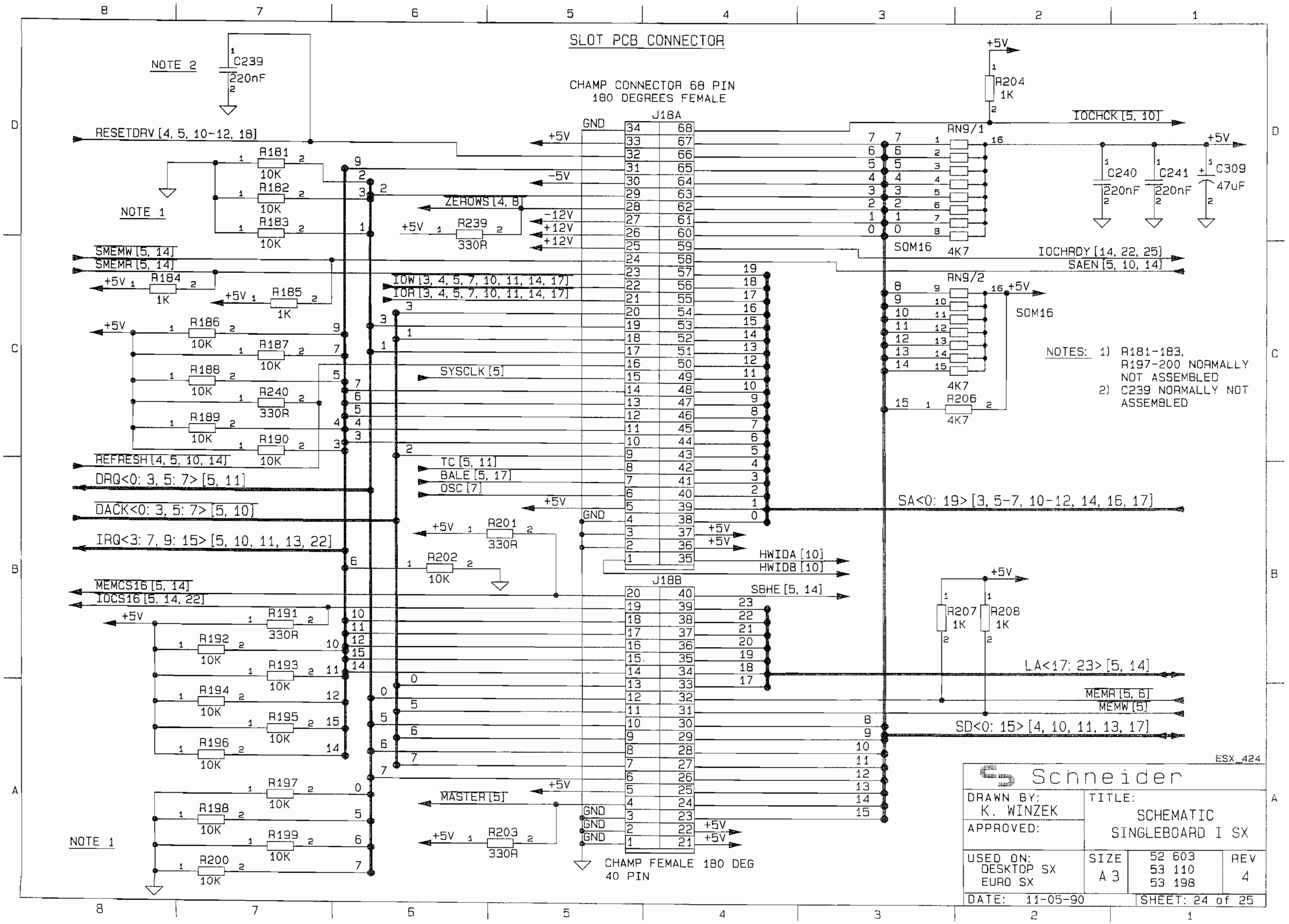
NOTES:
1) C224, C226, C228 NORMALLY NOT ASSEMBLED
2) U64 NORMALLY NOT ASSEMBLED
3) L7-L12, L14, L16 ONLY ASSEMBLED IF REQUIRED, OHTERWISE 1R RESISTORS ASSEMBLED.

CONNECTORS IV

Schneider

DRAWN BY: H. ULLRICH	TITLE: SCHEMATIC SINGLEBOARD I SX		
APPROVED:			
USED ON: DESKTOP SX EURO SX	SIZE A 3	52 603 53 110 53 198	REV 4
DATE: 11-23-90		SHEET: 23 of 25	

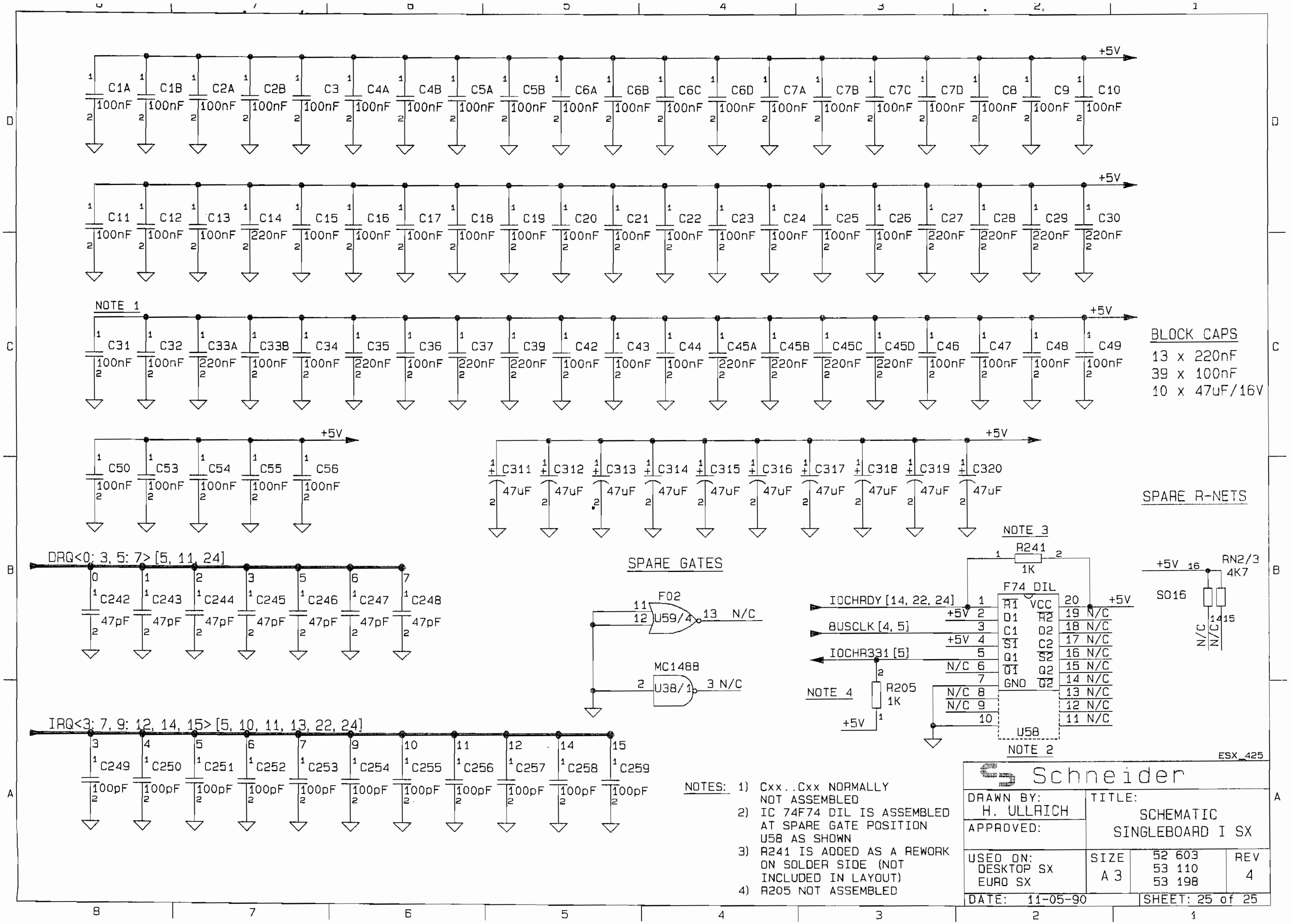
SLOT PCB CONNECTOR


CHAMP CONNECTOR 68 PIN
180 DEGREES FEMALE
J18A
J18B
CHAMP FEMALE 180 DEG
40 PIN
NOTE 2
C239 220nF
NOTE 1
RESETDRV [4, 5, 10-12, 18]
R181 10K
R182 10K
R183 10K
SMEMW [5, 14]
SMEMR [5, 14]
R184 1K
R185 1K
R186 10K
R187 10K
R188 10K
R240 330R
R189 10K
R190 10K
REFRESH [4, 5, 10, 14]
DRQ<0: 3, 5: 7> [5, 11]
DACK<0: 3, 5: 7> [5, 10]
IRQ<3: 7, 9: 15> [5, 10, 11, 13, 22]
MEMCS16 [5, 14]
IOCS16 [5, 14, 22]
R191 330R
R192 10K
R193 10K
R194 10K
R195 10K
R196 10K
R197 10K
R198 10K
R199 10K
R200 10K
+5V
-5V
-12V
+12V
ZEROWS [4, 8]
R239 330R
IOW [3, 4, 5, 7, 10, 11, 14, 17]
IOR [3, 4, 5, 7, 10, 11, 14, 17]
SYSCLK [5]
TC [5, 11]
BALE [5, 17]
OSC [7]
R201 330R
R202 10K
MASTER [5]
R203 330R
GND
HWIDA [10]
HWIDB [10]
SBHE [5, 14]
R204 1K
IOCHCK [5, 10]
RN9/1
RN9/2
4K7
SOM16
C240 220nF
C241 220nF
C309 47uF
IOCHRDY [14, 22, 25]
SAEN [5, 10, 14]
R206 4K7
SA<0: 19> [3, 5-7, 10-12, 14, 16, 17]
R207 1K
R208 1K
LA<17: 23> [5, 14]
MEMR [5, 6]
MEMW [5]
SD<0: 15> [4, 10, 11, 13, 17]
ESX_424

NOTES:
1) R181-183, R197-200 NORMALLY NOT ASSEMBLED
2) C239 NORMALLY NOT ASSEMBLED

Schneider

DRAWN BY: K. WINZEK
APPROVED:
TITLE: SCHEMATIC SINGLEBOARD I SX
USED ON: DESKTOP SX EURO SX
SIZE A 3
52 603
53 110
53 198
REV 4
DATE: 11-05-90
SHEET: 24 of 25


+5V
C1A 100nF
C1B 100nF
C2A 100nF
C2B 100nF
C3 100nF
C4A 100nF
C4B 100nF
C5A 100nF
C5B 100nF
C6A 100nF
C6B 100nF
C6C 100nF
C6D 100nF
C7A 100nF
C7B 100nF
C7C 100nF
C7D 100nF
C8 100nF
C9 100nF
C10 100nF
C11 100nF
C12 100nF
C13 100nF
C14 220nF
C15 100nF
C16 100nF
C17 100nF
C18 100nF
C19 100nF
C20 100nF
C21 100nF
C22 100nF
C23 100nF
C24 100nF
C25 100nF
C26 100nF
C27 220nF
C28 220nF
C29 220nF
C30 220nF
NOTE 1
C31 100nF
C32 100nF
C33A 220nF
C33B 100nF
C34 100nF
C35 220nF
C36 100nF
C37 220nF
C39 220nF
C42 100nF
C43 100nF
C44 100nF
C45A 220nF
C45B 220nF
C45C 220nF
C45D 220nF
C46 100nF
C47 100nF
C48 100nF
C49 100nF
C50 100nF
C53 100nF
C54 100nF
C55 100nF
C56 100nF
C311 47uF
C312 47uF
C313 47uF
C314 47uF
C315 47uF
C316 47uF
C317 47uF
C318 47uF
C319 47uF
C320 47uF
DRQ<0: 3, 5: 7> [5, 11, 24]
C242 47pF
C243 47pF
C244 47pF
C245 47pF
C246 47pF
C247 47pF
C248 47pF
IRQ<3: 7, 9: 12, 14, 15> [5, 10, 11, 13, 22, 24]
C249 100pF
C250 100pF
C251 100pF
C252 100pF
C253 100pF
C254 100pF
C255 100pF
C256 100pF
C257 100pF
C258 100pF
C259 100pF
SPARE GATES
F02
U59/4
11
12
13 N/C
MC1488
U38/1
2
3 N/C
NOTE 3
R241 1K
F74 DIL
IOCHRDY [14, 22, 24]
BUSCLK [4, 5]
IOCHR331 [5]
NOTE 4
R205 1K
+5V
R1 VCC
D1 R2
C1 D2
S1 C2
Q1 S2
Q1 Q2
GND Q2
N/C
U58
NOTE 2
SPARE R-NETS
RN2/3 4K7
S016
14 15
N/C

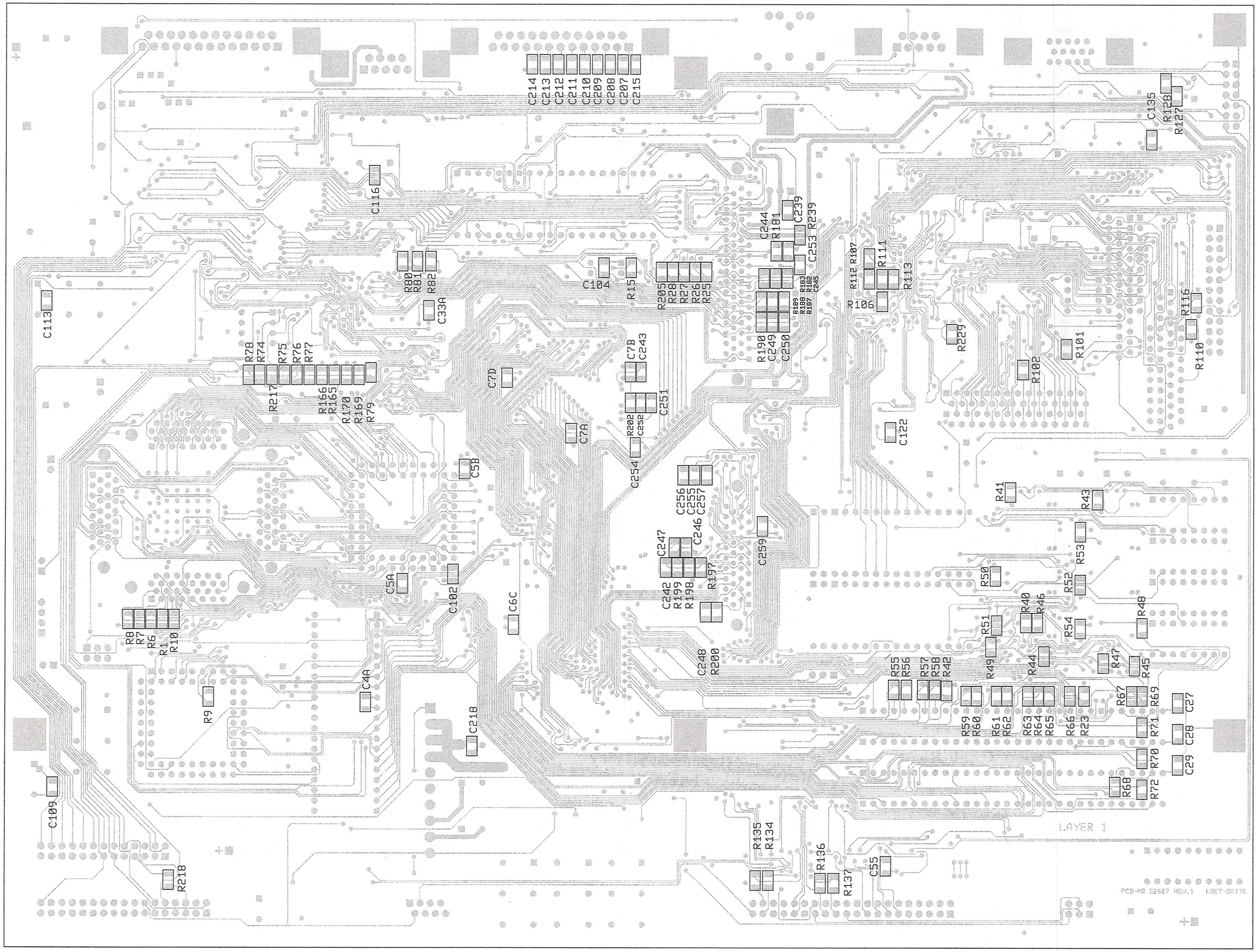
BLOCK CAPS
13 x 220nF
39 x 100nF
10 x 47uF/16V

NOTES:
1) Cxx..Cxx NORMALLY NOT ASSEMBLED
2) IC 74F74 DIL IS ASSEMBLED AT SPARE GATE POSITION U58 AS SHOWN
3) R241 IS ADDED AS A REWORK ON SOLDER SIDE (NOT INCLUDED IN LAYOUT)
4) R205 NOT ASSEMBLED

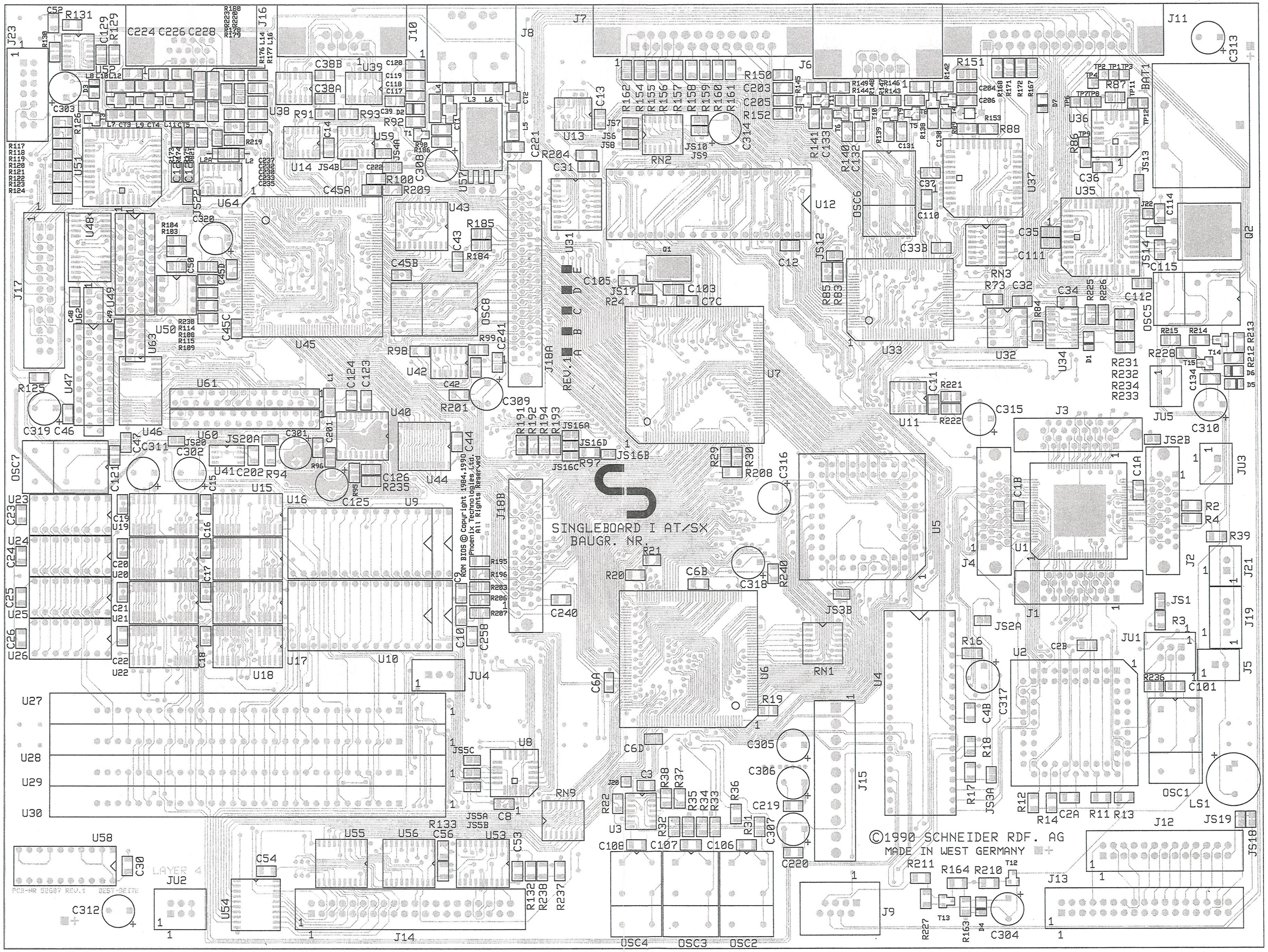
ESX_425

Schneider	
DRAWN BY: H. ULLRICH	TITLE: SCHEMATIC SINGLEBOARD I SX
APPROVED:	
USED ON: DESKTOP SX EURO SX	SIZE A 3
	52 603 53 110 53 198
	REV 4
DATE: 11-05-90	SHEET: 25 of 25

CPU P.C.B.
Soldering side
EURO 386 SX
L 386


C214
C213
C212
C211
C210
C209
C208
C207
C215
C135
R128
R127
C116
C239
R239
C244
R181
C253
R112
R107
R111
R113
R106
R109
R108
C245
R80
R81
R82
C33A
C104
R15
R205
R28
R27
R26
R25
R190
C249
C250
R229
R101
R102
R116
R110
C113
R78
R74
R75
R76
R77
R217
R166
R165
R170
R169
R79
C7D
C7B
C243
C251
R202
C252
C7A
C122
C5B
C254
C256
C255
C257
C246
C247
R41
R43
C259
R53
R50
C242
R199
R198
R197
R52
C5A
C102
C6C
R40
R46
R48
R8
R7
R6
R1
R10
R51
R54
C248
R200
R55
R56
R57
R58
R42
R49
R44
R47
R45
C4A
R9
C218
R59
R60
R61
R62
R63
R64
R65
R66
R23
R67
R69
C27
R71
C28
R70
C29
R68
R72
C109
LAYER 1
R135
R134
R136
R137
C55
R218
PCB-NR 58607 REV.1 LOET-SEITE

CPU P.C.B.
Component side
EURO 386 SX
L 386


SINGLEBOARD I AT/SX
BAUGR. NR.
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MADE IN WEST GERMANY
REV.1
ROM BIOS © Copyright 1984,1990 Phoenix Technologies Ltd. All Rights Reserved
LAYER 4
U1
U2
U3
U4
U5
U6
U7
U8
U9
U10
U11
U12
U13
U14
U15
U16
U17
U18
U27
U28
U29
U30
U31
U32
U33
U34
U35
U36
U37
U38
U39
U40
U41
U42
U43
U44
U45
U46
U47
U48
U49
U50
U51
U52
U53
U54
U55
U56
U58
U59
U60
U61
U62
U63
U64
J1
J2
J3
J4
J5
J6
J7
J8
J9
J10
J11
J12
J13
J14
J15
J16
J17
J18A
J18B
J19
J21
J23
JU1
JU2
JU3
JU4
JU5
OSC1
OSC2
OSC3
OSC4
OSC5
OSC6
OSC7
OSC8
RN1
RN2
RN3
RN9
LS1
BAT1
Q1
Q2
C313
C316
C318
C309
C310
C315
C317
C319
C312
C304
C305
C306
C307
C219
C220
C240
C258

Ersatzteilliste für Platine CPU 16 MHz/20 MHz
Parts list for CPU P.C.B. 16 MHz/20 MHz

Best.-Nr. Part.-No.	Bezeichnung	Description	Zeich.-Pos. Ref.-No.	Preisgruppe Price key
50 828 00	IC 80386 SX-16 CPU 16 MHz	IC 80386 SX-16 CPU 16 MHz	U 1	G 4
52 754 00	IC 74 F 08 SO14	IC 74 F 08 SO 14	U 3	A 7
53 178 00	IC VL 82C320	IC VL 82C320	U 6	E 6
53 179 00	IC VL 82C331	IC VL 82C331	U 7	E 8
52 729 00	IC HAL 16 L8B PLCC Prog.	IC HAL 16 L8B PLCC prog.	U 8	B 6
52 738 00	IC 512-15 BIOS „LOW“	IC 512-15 BIOS “LOW”	U 9	D 9
52 739 00	IC 512-15 BIOS „HIGH“	IC 512-15 BIOS “HIGH“	U 10	D 9
52 751 00	IC 74 ACT 74 SO14	IC 74 ACT 74 SO 14	U 11	A 7
50 243 00	IC 8042 12 MHz	IC 8042 12 MHz	U 12	C 3
51 586 00	IC 7406 SO14	IC 7406 SO14	U 13	A 9
51 589 00	IC 74 F 126 SO14	IC 74 F 126 SO14	U 14	A 6
52 749 00	IC DRAM 256K X 4 80NS	IC DRAM 256K X 4 80NS	U 15-22, 46, 48	D 0
52 761 00	IC SIMM Sockel 2 X 30 PIN	IC SIMM base 2 X 30 PIN	U 27-30	B 5
51 319 00	IC 74 LS 245 SO20	IC 74 LS 245 SO20	U 31, 43, 44, 54, 55	A 7
52 758 00	IC NMC 9346N DIL8	IC NMC 9346N DIL8	U 32, 50	B 5
50 773 00	IC BIGJIM TC110G008	IC BIGJIM TC110G008	U 33	D 1
51 318 00	IC 74 HC 165 SO22	IC 74 HC 165 SO22	U 34	A 9
50 105 00	IC WD 37C65A/B-JMOO	IC WD 37C65A/B-JMOO	U 35	D 5
50 827 00	IC 16 C 450 PLCC44	IC 16 C 450 PLCC44	U 37	C 6
52 756 00	IC MC 1488 SO14	IC MC 1488 SO14	U 38	A 6
52 757 00	IC MC 1489 SO	IC MC 1489 SO	U 39	A 6
52 752 00	IC ATI 18810 SO20	IC ATI 18810 SO20	U 40	C 3
52 750 00	IC 78 L 05 S08	IC 78 L 05 S08	U 41	A 4
52 753 00	IC ATI 28800 QPFP 160	IC ATI 28800 QPFP 160	U 45	F 1
52 944 00	IC TR 9C 1710-66DC	IC TR 9C 1710-66DC	U 51	C 7
51 543 00	IC LM 339 Quad Comparator	IC LM 339 quad comparator	U 52	B 2
51 321 00	IC 74 LS 244 SO20	IC 74 LS 244 SO20	U 53, 56	B 0
50 238 00	IC 7905	IC 7905	U 57	A 6
51 144 00	IC 74 F 74 DIL	IC 74 F 74 DIL	U 58	A 6
52 982 00	IC 74 F 02 SO14	IC 74 F 02 SO14	U 59	A 6
52 763 00	Transistor BC 817	Transistor BC 817	T 1, 3-7, 12-14	A 1
52 764 00	Transistor BC 807	Transistor BC 807	T 8-11, 15	A 1
52 765 00	Diode BAS 32	Diode BAS 32	D 1-7	A 5
52 348 00	Osz. 14,3181 MHz	Oscillator 14.3181 MHz	OSC 3	B 8
50 833 00	Osz. 32,0 MHz	Oscillator 32.0 MHz	OSC 4	B 8
51 330 00	Osz. 1,8432 MHz	Oscillator 1.8432 MHz	OSC 6	C 2
50 989 00	Osz. 45,0 MHz	Oscillator 45.0 MHz	OSC 8	C 2
51 040 00	Quarz 32,768 kHz	Crystal 32.768 kHz	Q 1	A 7
51 093 00	Quarz 9,6 MHz	Crystal 9.6 MHz	Q 2	A 8
50 321 00	Widerstand PTC 0R75	Resistor PTC 0R75	R 153	B 0
52 769 00	R-Netzwerk 15X10K	R network 15×10K	RN 1	A 7
52 768 00	R-Netzwerk 15X4K7	R network 15×4K7	RN 2, 9	A 7
52 767 00	R-Netzwerk 15X1K	R network 15×1K	RN 3	A 7
52 775 00	Spule 4,7 µH	Coil 4.7 µH	L 2	A 7
52 777 00	Batterie 3,6 V	Battery 3.6 V	BAT 1	C 0
50 332 00	Summer	Buzzer	LS 1	A 8
51 569 00	Stiftleiste 26pol.	Socket 26-pin	J 12, 17	A 7
51 084 00	Stiftleiste 2×17	Socket 2×17	J 13	A 7
51 085 00	Stiftleiste 2×20	Socket 2×20	J 14	A 7
52 779 00	Stiftleiste	Socket	J 15	A 7
53 247 00	Stiftleiste 4pol.	Socket 4-pin	J 19	A 7
51 626 00	Stiftleiste 2pol.	Socket 2-pin	J 21, JU 5	A 7
51 385 00	Buchse SUB-D 9pol.	Socket SUB-D 9-pin	J 6	C 3
52 984 00	Buchse SUB-D 25pol.	Socket SUB-D 25-pin	J 7, 11	B 2
51 139 00	Stiftleiste 6pol.	Socket 6-pin	JU 1, 2	A 7
50 253 00	Stiftleiste 3pol.	Socket 3-pin	JU 4	A 7

Ersatzteilliste für Platine CPU 20 MHz
Parts list for CPU P.C.B. 20 MHz

Best.-Nr. Part.-No.	Bezeichnung	Description	Zeich.-Pos. Ref.-No.	Preisgruppe Price key
53 148 00	IC 80386 SX-20 CPU 20 MHz	IC 80386 SX-20 CPU 20 MHz	U 1	G 7
53 246 00	IC DRAM 256K X 4 60NS	IC DRAM 256K X 4 60NS	U 15-22	D 0
50 153 00	IC 256K X 4 DIL DRAM 85NS	IC 256K X 4 DIL DRAM 85NS	U 47, 49	D 3
52 762 00	Osz. 40,0 MHz	Oscillator 40,0 MHz	OSC 2	B 8

Error Code Table for EURO 386 SX, L 386

The "DIAGNP OUTPUT" codes are placed at the diagnostic status port to indicate tests in progress and failed tests to someone with hardware which can detect the output. If the FAILBEEP option is selected, the "BEEP CODES" are announced on the speaker if and only if a fatal failure is detected. For instance, "2-1-4" (a burst of two beeps, a single beep, a burst of four beeps) indicates a failure of bit 3 in the first 64K of RAM. Both set of codes are only used prior to screen initialization and screen retrace verification.

Once the screen is believed operable, any diagnostic reporting is via screen messages, except if MANLOOP EQU TRUE and the jumpers say to loop on POST. In this case, it is assumed that no video adapter is attached and some additional errors will be reported via DIAGNP and the speaker.

DIAGNP OUTPUT	BEEP CODES	DESCRIPTION OF TEST OR FAILURE
01h ;		80286 register test in-progress
02h ;	1-1-3	CMOS write/read test in-progress or failure
03h ;	1-1-4	BIOS ROM checksum in-progress or failure
04h ;	1-2-1	Programmable Interval Timer test in-progress or failure
05h ;	1-2-2	DMA initialization in-progress or failure
06h ;	1-2-3	DMA page register write/read test in-progress or fail
07h ;	1-2-4	JIM port address offset determination in-progress or not found
08h ;	1-3-1	RAM refresh verification in-progress or failure
09h ;		1st 64K RAM test in-progress
0Ah ;	1-3-3	1st 64K RAM chip or data line failure - multi-bit
0Bh ;	1-3-4	1st 64K RAM odd/even logic failure
0Ch ;	1-4-1	1st 64K RAM address line failure
0Dh ;	1-4-2	1st 64K RAM parity test in_progress or failure
0Eh ;	1-4-3	invalid PBC ID ;V2.00
10h ;	2-1-1	1st 64K RAM chip or data line failure - bit 0
11h ;	2-1-2	1st 64K RAM chip or data line failure - bit 1
12h ;	2-1-3	1st 64K RAM chip or data line failure - bit 2
13h ;	2-1-4	1st 64K RAM chip or data line failure - bit 3
14h ;	2-2-1	1st 64K RAM chip or data line failure - bit 4
15h ;	2-2-2	1st 64K RAM chip or data line failure - bit 5
16h ;	2-2-3	1st 64K RAM chip or data line failure - bit 6
17h ;	2-2-4	1st 64K RAM chip or data line failure - bit 7
18h ;	2-3-1	1st 64K RAM chip or data line failure - bit 8
19h ;	2-3-2	1st 64K RAM chip or data line failure - bit 9
1Ah ;	2-3-3	1st 64K RAM chip or data line failure - bit A
1Bh ;	2-3-4	1st 64K RAM chip or data line failure - bit B
1Ch ;	2-4-1	1st 64K RAM chip or data line failure - bit C
1Dh ;	2-4-2	1st 64K RAM chip or data line failure - bit D
1Eh ;	2-4-3	1st 64K RAM chip or data line failure - bit E
1Fh ;	2-4-4	1st 64K RAM chip or data line failure - bit F
20h ;	3-1-1	slave DMA register test in-progress or failure
21h ;	3-1-2	master DMA register test in-progress or failure
22h ;	3-1-3	master interrupt mask register test in-progress or fail
23h ;	3-1-4	slave interrupt mask register test in-progress or fail
25h ;		interrupt vector loading in-progress
27h ;	3-2-4	keyboard controller test in-progress or failure
28h ;		CMOS power-fail and checksum checks in-progress
29h ;		CMOS config info validation in-progress
2Ah ;	3-3-3	monitor type determination in-progress or failure
2Bh ;	3-3-4	screen memory test in-progress or failure
2Ch ;	3-4-1	screen initialization in-progress or failure
2Dh ;	3-4-2	screen retrace tests in-progress or failure
2Eh ;		search for video ROM in-progress
30h ;		screen believed operable:

```
30h ;         screen believed running w/ video ROM
31h ;         monochromatic screen believed operable
32h ;         40-column color screen believed operable
33h ;         80-column color screen believed operable
```

The following codes are reported via DIAGNP and the speaker only if MANLOOP EQU TRUE and the "manufacturing jumper" indicates loop on POST. Otherwise, these errors are reported via the screen and POST continues. Use of the manufacturing jumper requires working correctly configured CMOS.

```
34h ; 4-2-1   timer tick interrupt test in_progress or failure
35h ; 4-2-2   shutdown test in_progress or failure
36h ; 4-2-3   gate A20 failure
37h ; 4-2-4   unexpected interrupt in protected mode
38h ; 4-3-1   RAM test in_progress or failure above address 0FFFFh
3Ah ; 4-3-3   Interval timer channel 2 test in_progress or failure
3Bh ; 4-3-4   Time-Of-Day clock test in_progress or failure
3Ch ; 4-4-1   Serial port test test in_progress or failure
3Dh ; 4-4-2   Parallel port test test in_progress or failure
3Eh ; 4-4-3   Math Coprocessor test in_progress or failure
```

Notizen

Note

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